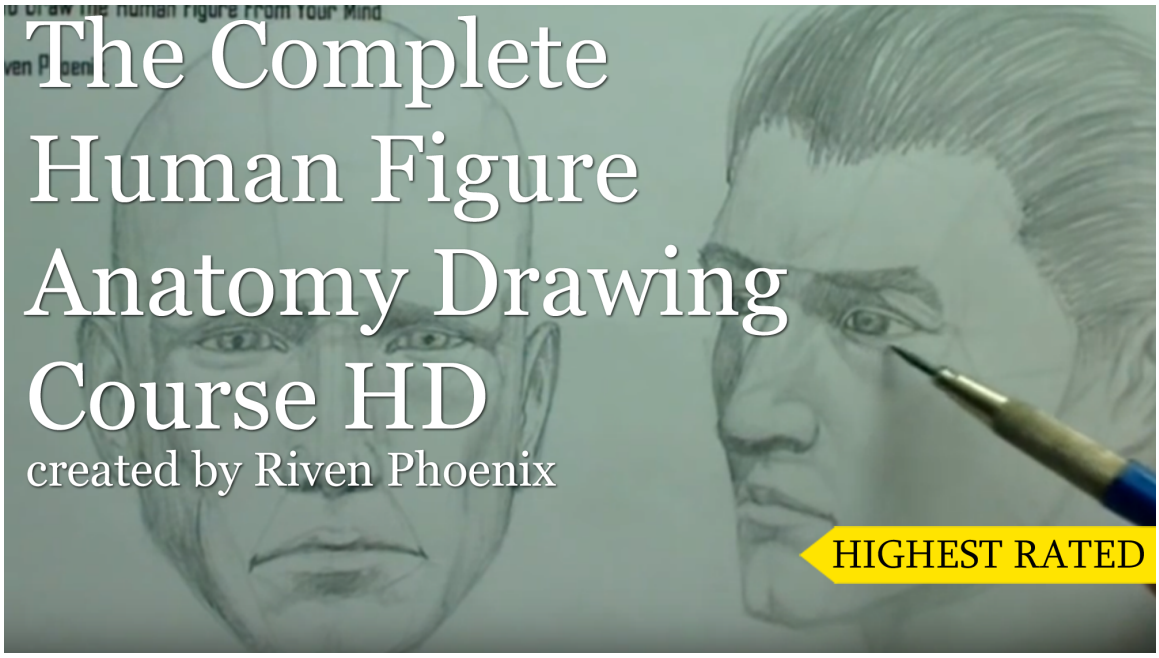

The Structure of Man

Learn to Draw the Human Figure From Your Mind with Riven Phoenix

www.alienthink.com

Figure Drawing Lesson 062 - The invention of the Radius & Ulna

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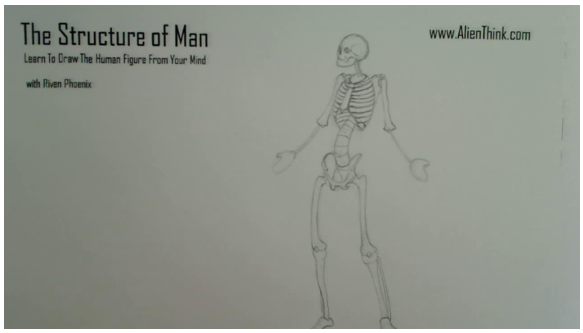
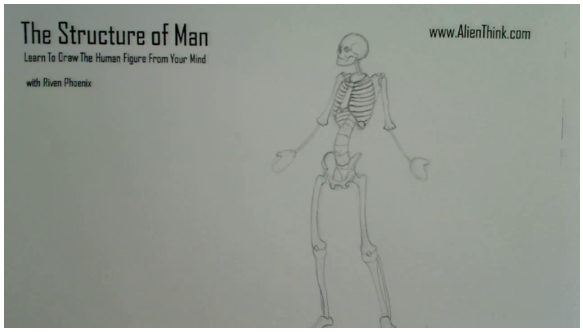
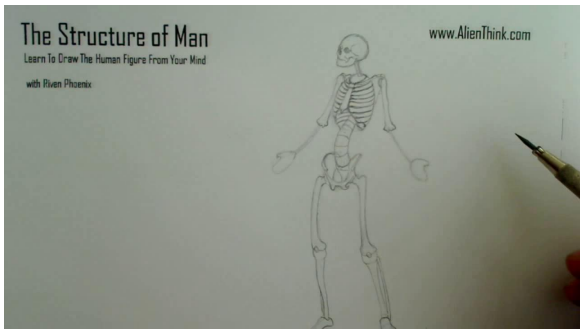
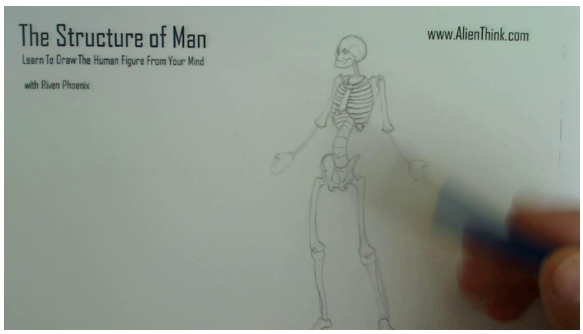
1		You guys, my name is Riven Phoenix and welcome to the structure of Man Learn to Draw the Human
2		Figure from your mind training course.
3		Okay, so in the previous lesson, here we've reached a significant milestone to be able to
4		draw out the skeletal structure using our toolkit in a gesture drawing system, right?

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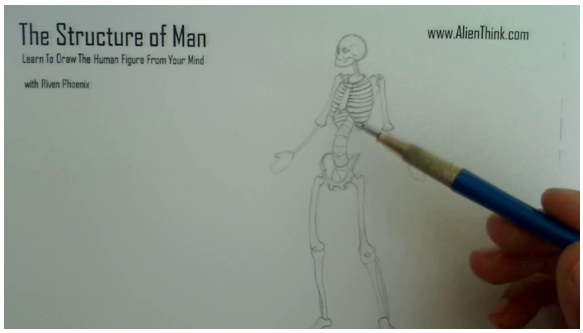
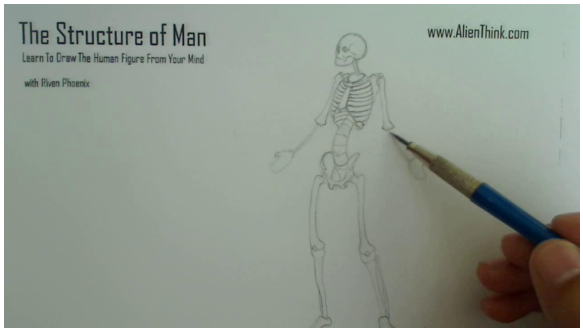
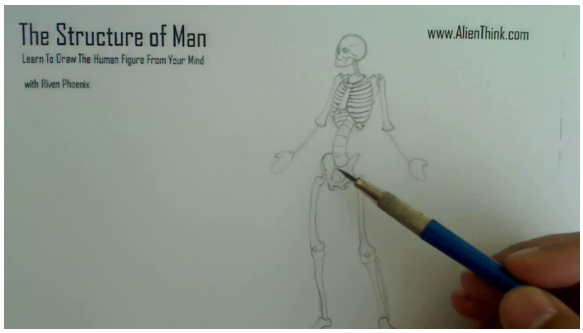
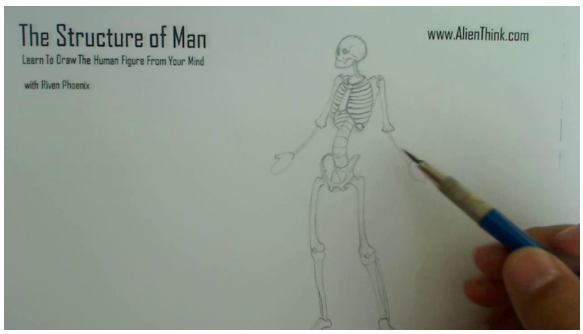
5		It begins to take that fluid form and we know from within that toolkit how to use it
6		to create the skeletal structure, right?
7		So regardless of how you end up in the end drawing the complete figure with all the muscles,
8		right, it's going to be really up to you us to choose which path you want to go, right?

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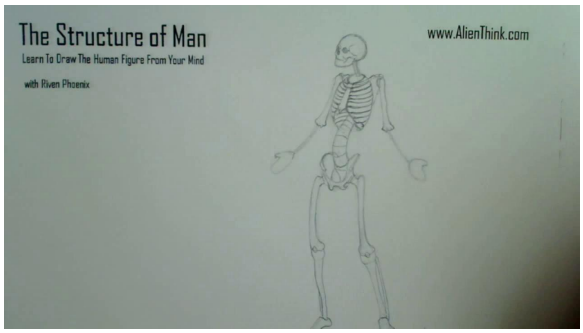
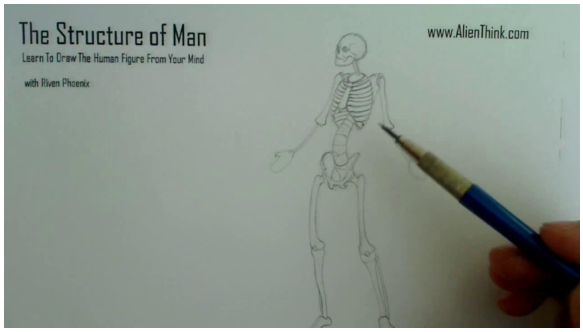
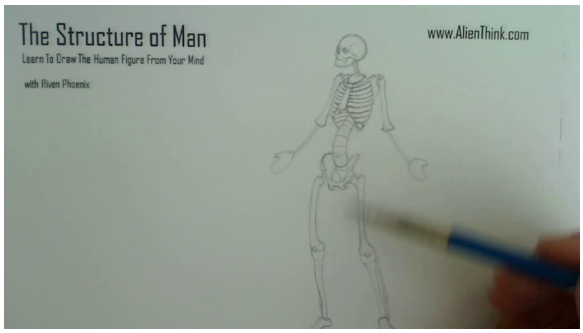
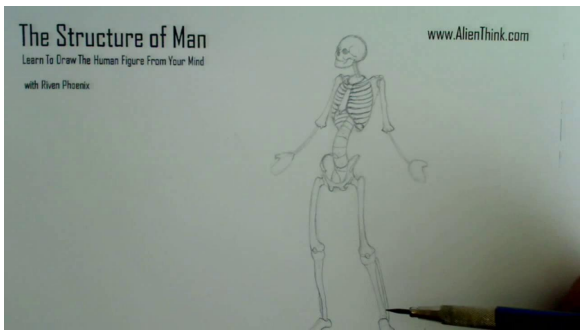
9		So there's several paths to this.
10		One is that you can either use the toolkit like this or the other path as you can use
11		the toolkit like this and then draw out all the basic shapes and then top of it do the
12		surface synonymous, right?

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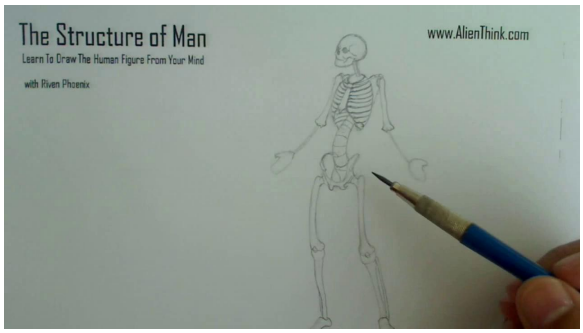
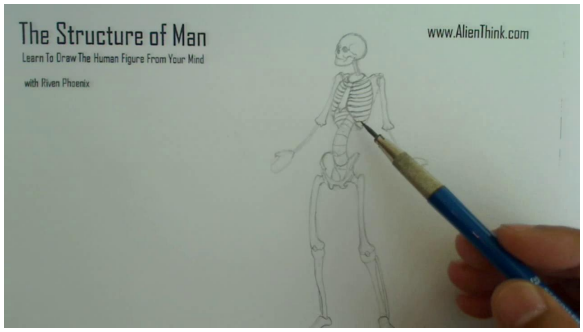
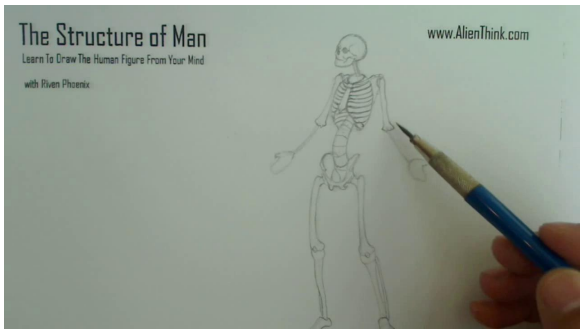
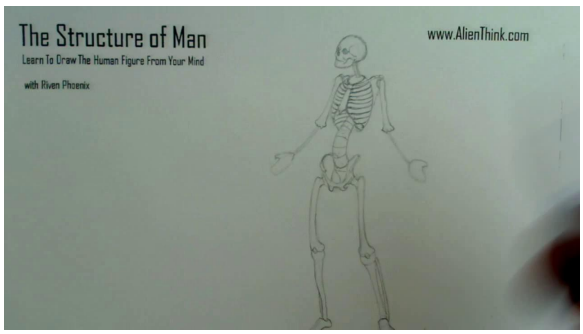
13		So it's really a choice between which idea you want to go, right?
14		So if you can do it this way and then envision all the basic shapes on top of this and then
15		put all the muscles for even more accuracy.
16		But in the end it's just going to come down really just to a basic forms and understanding

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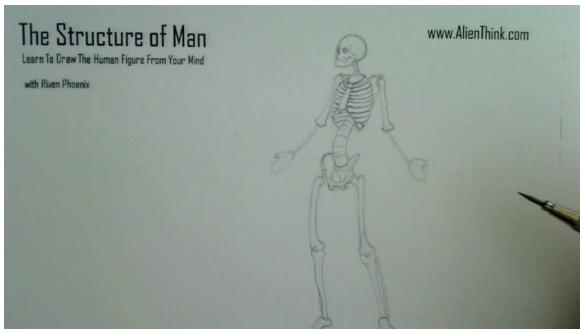
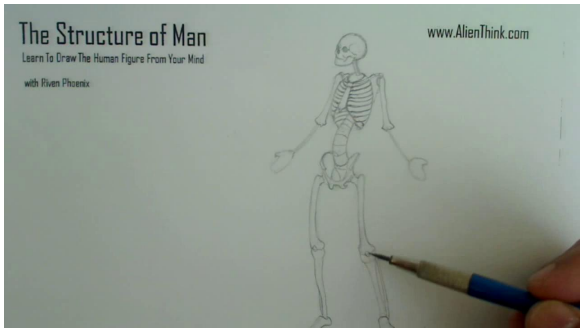
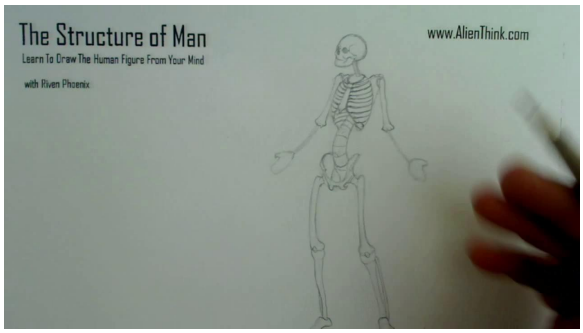
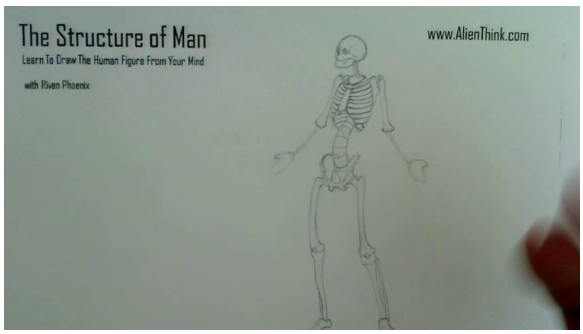
17		the surface anatomy, right?
18		All you have to do is really just think about the skeletal structure in the end, right?
19		It depends on really your choice.
20		So when we get into the muscles, we're going to look at this issue much more deeper so

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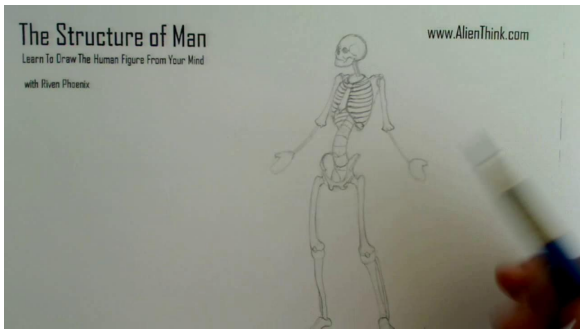
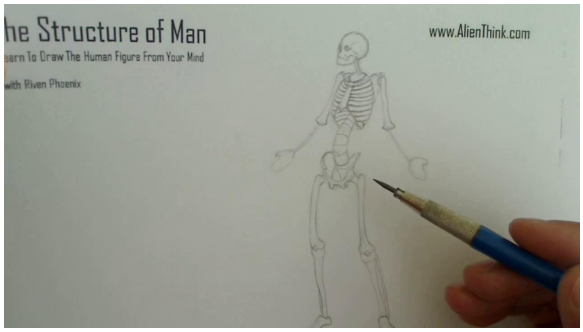
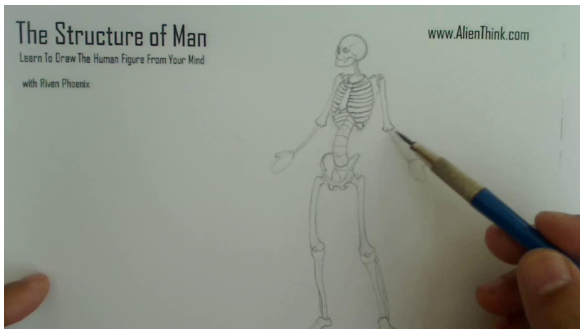
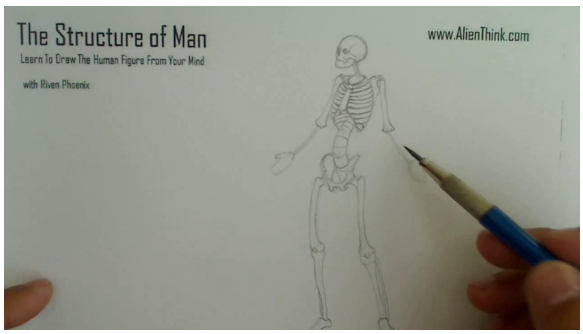
21		we can draw it out, our figures much more rapidly, okay?
22		So what we're going to do now is begin to understand the two new bones that we need to invent
23		which we're going to call the ulna and the radius, right?
24		And these are the bones that are going to define the forearm and will allow the hand to

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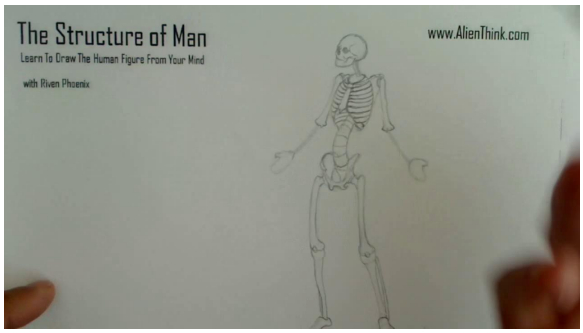
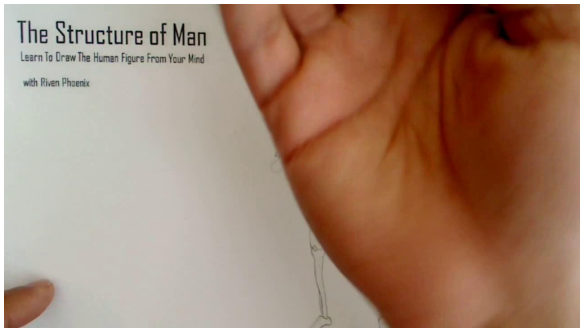
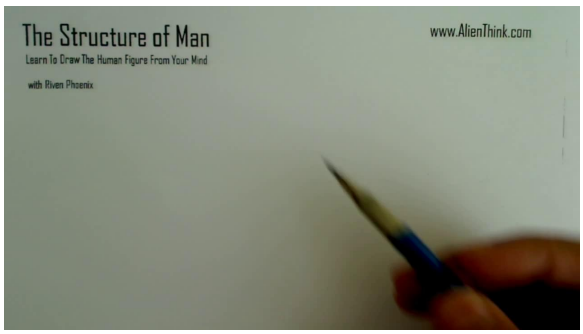
25		turn this for this way, right?
26		We can twist the head.
27		So to do this, what we need to do is first understand a basic concept of this and really
28		just understanding this in 3D.

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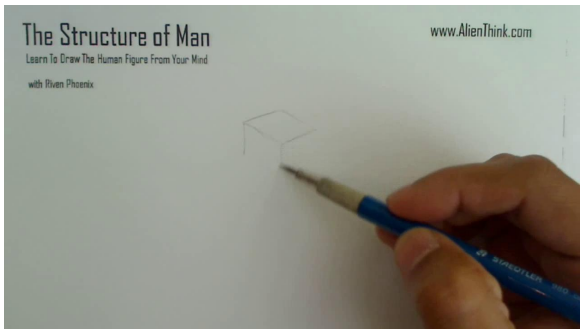
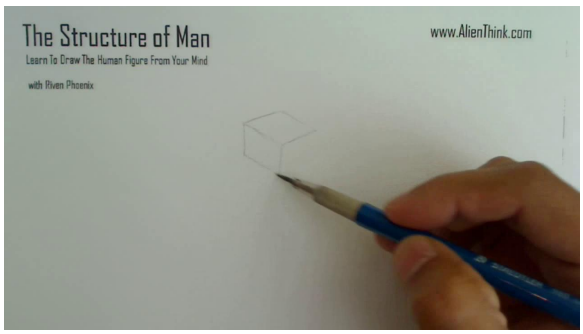
29		So if we had to understand just the basic concept of this, here we could just draw out a basic
30		shape over here, let's say we're going to first draw out a box over here first.
31		Just to get the mind to understand the concept over here, right?
32		So this bottom box, here we're going to say this box here is really going to be the structure

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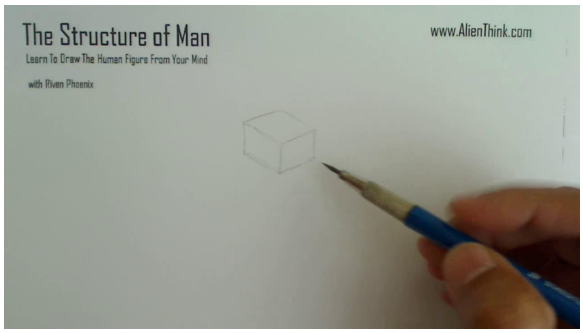
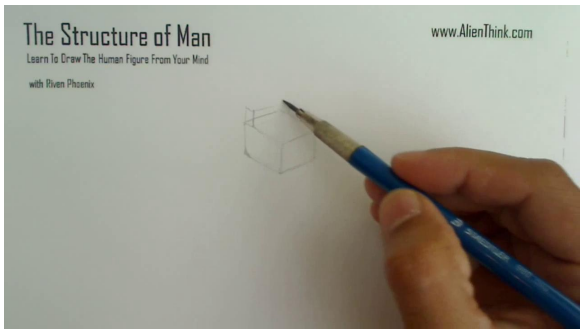
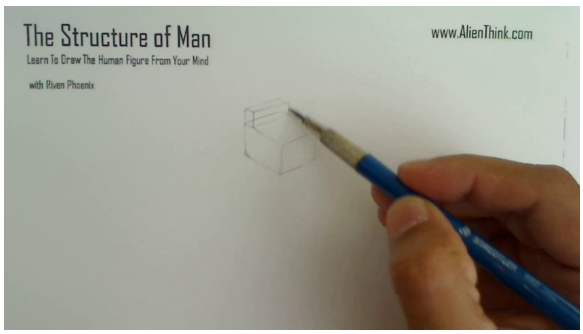
33		of the elbow, meaning that your elbow is really this over here and then over here we're
34		going to push this out a little bit and then we're going to, let's go over here and
35		it's most basic sense in 3D, 3D-dimensional, we're going to add another piece of wood
36		that's going to go on top over here like this, right?

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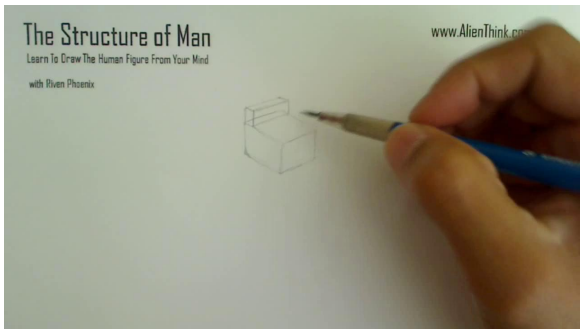
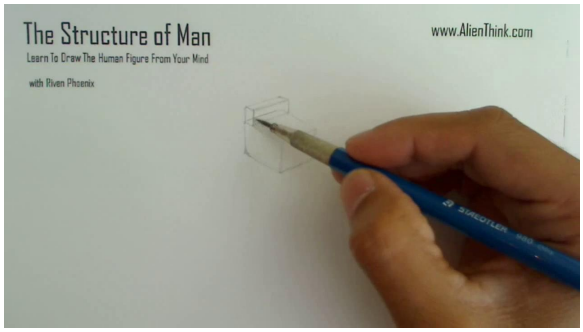
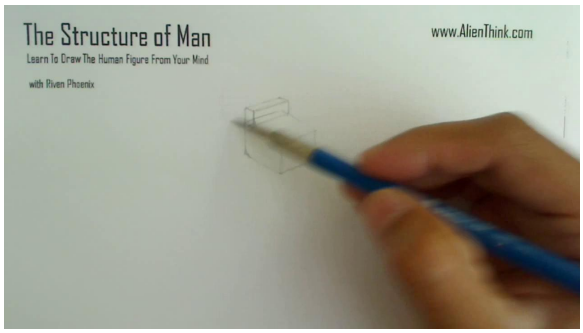
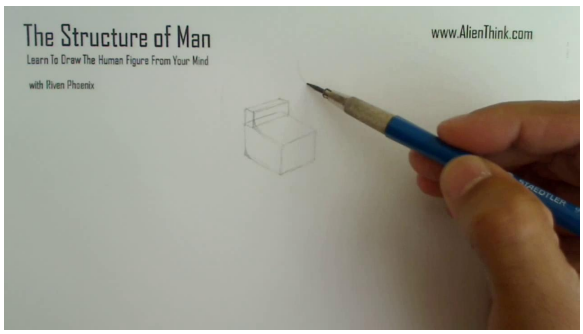
37		So it's really this thing over here.
38		So what this thing is is that this is really like a piece of bone that if we now put the
39		humerus bone, it would really go over here like this, right?
40		Here would be that pointy area that we were talking about for the elbow who were looking

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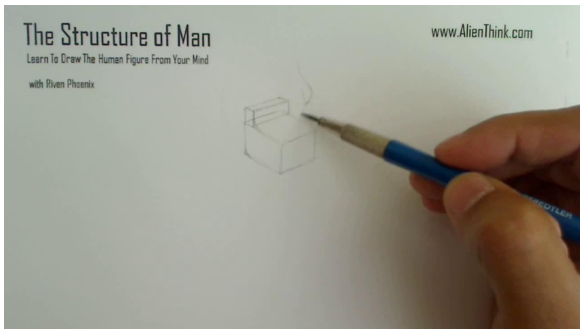
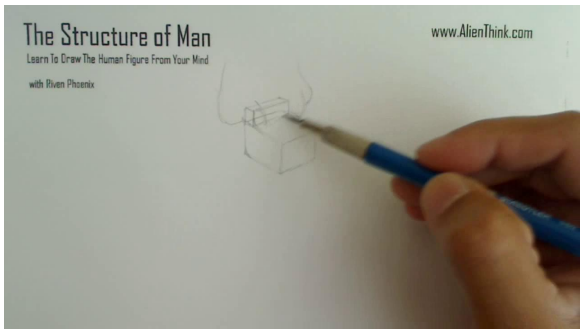
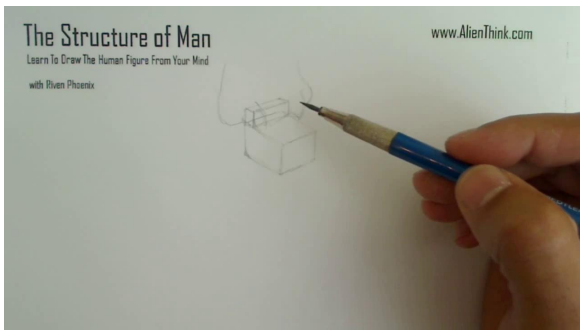
41		at this in 3D, then we would have this structure over here and then we would have this and
42		then we said it's another thing here and then it goes like this, right?
43		So what I'm talking about here is if you go back to your formulas, actually when we
44		had understood the humerus bone, what I'm talking about is here, this box is sitting right

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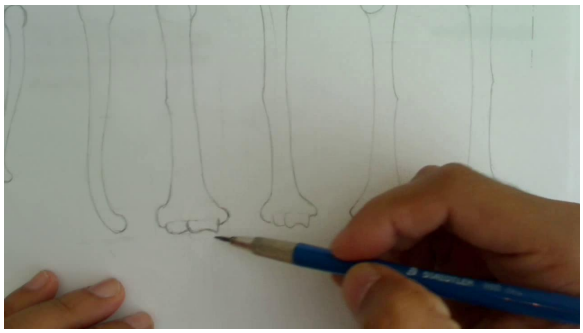
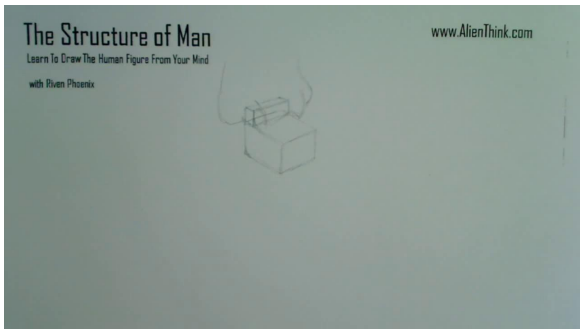
45		over here, okay?
46		That's what this is, what we're talking about over here.
47		So I'm just going to erase this over here, right?
48		So just so you can concept you understand it and here this thing here in this much very

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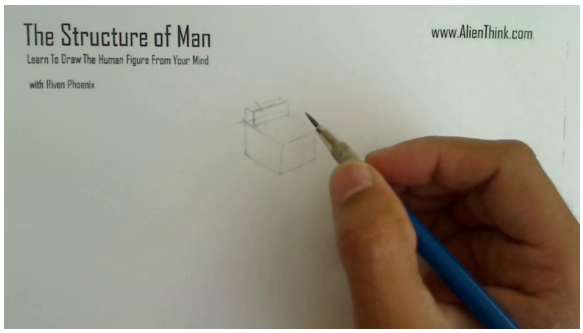
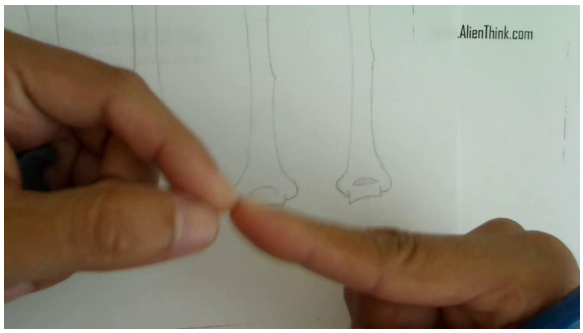
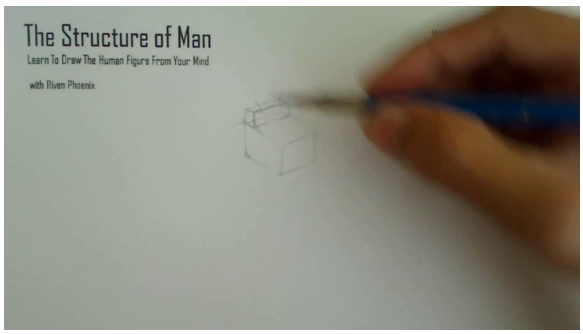
49		basic idea is because if it's going to be sitting over here, here in the back is where
50		it gets lodged in when you try to bend your elbow, right?
51		If you go all the way here, this thing is going to get lodged in over here, you'll understand
52		this a little more in a few minutes.

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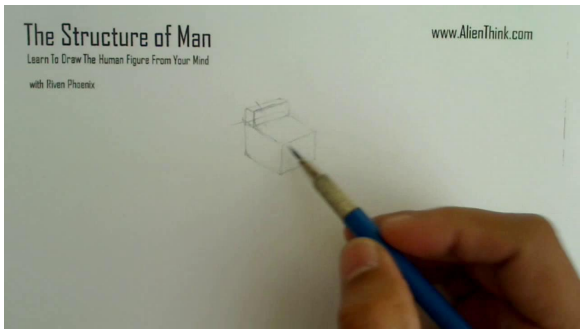
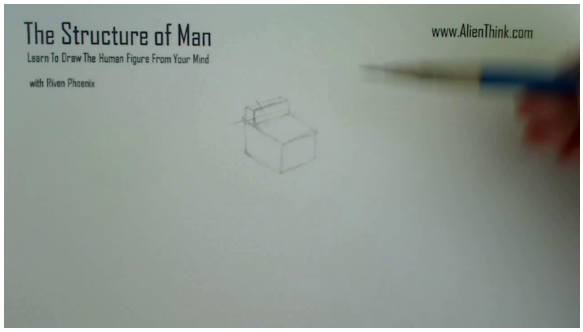
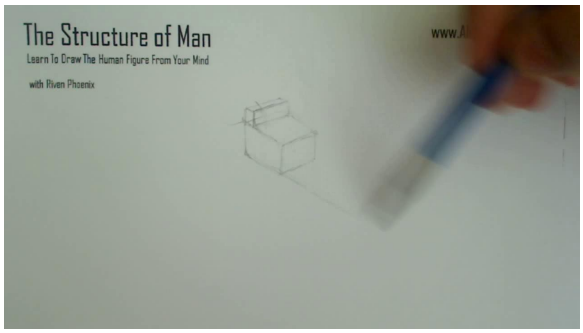
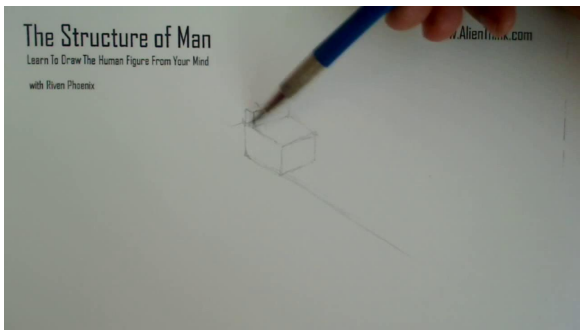
53		So this is the beginning of this.
54		So what we're going to say is okay, well, because this is the forearm, we need to actually
55		make this a little more longer, right?
56		So here we're going to elongate this even more and we can actually elongate it all

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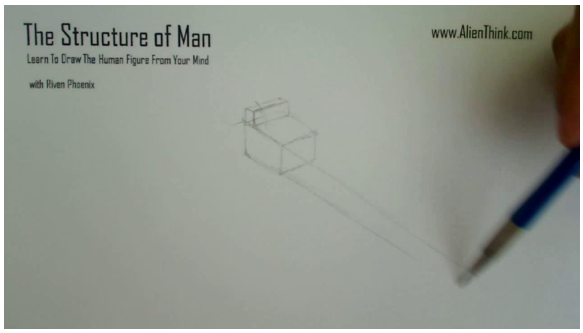
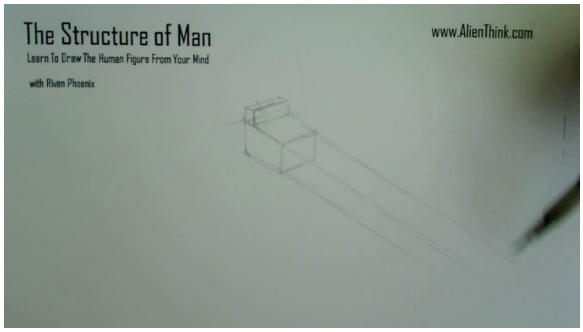
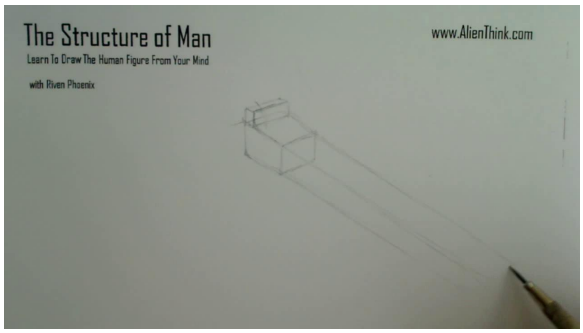
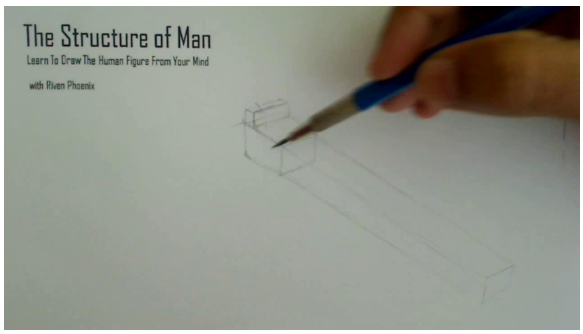
57		the way down over here just like this and make it like this really long piece of wood
58		attached to it, okay?
59		And this basically is going to be the same thing coming down like this, right?
60		So we're just going to sketch this out like this, just like that, okay?

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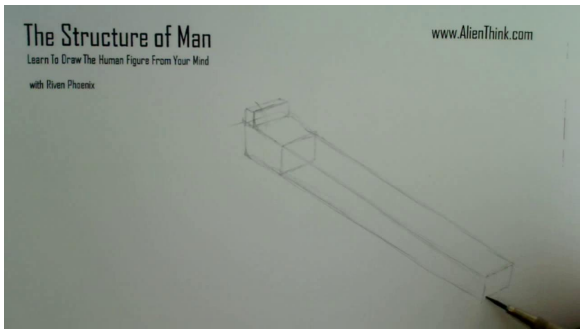
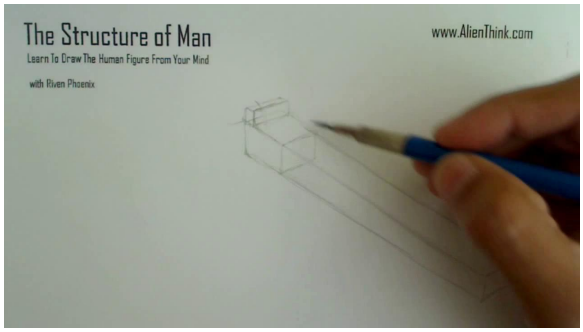
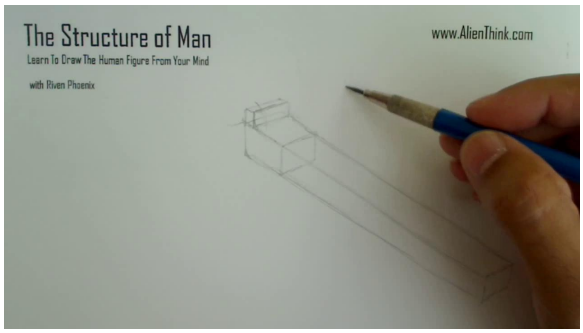
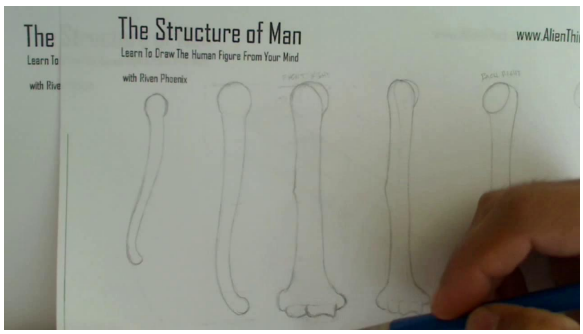
61		So this is the end over here, so basically your wrist is going to be going here.
62		So the characteristics of this bone is when you're looking at it from the front, right?
63		From the front, meaning that if this is the front right of your arm and it's going to
64		be here, if it's going down this way, when we're looking down, what we need to understand

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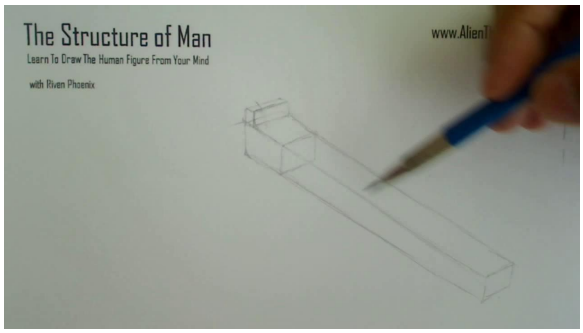
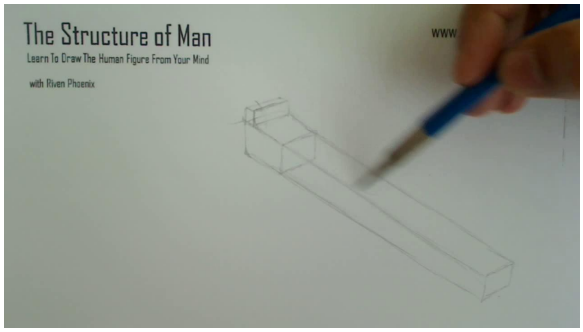
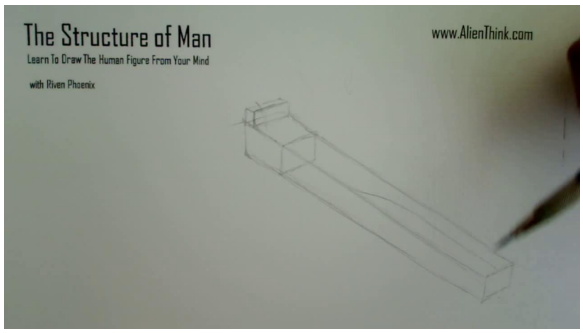
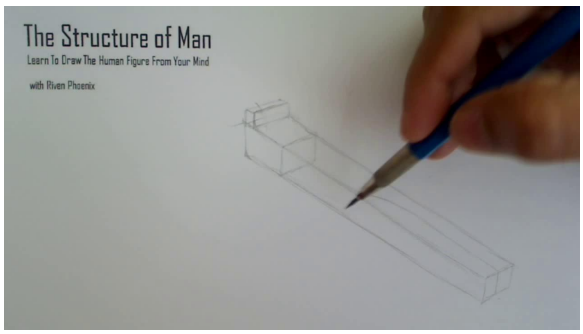
65		about this is basically halfway from here, this thing is going to start to turn in.
66		So here we're going to now cut this using a tool and cut it over here, right?
67		So this thing is now going to be cut like this.
68		So basically we're just cutting this like this, right?

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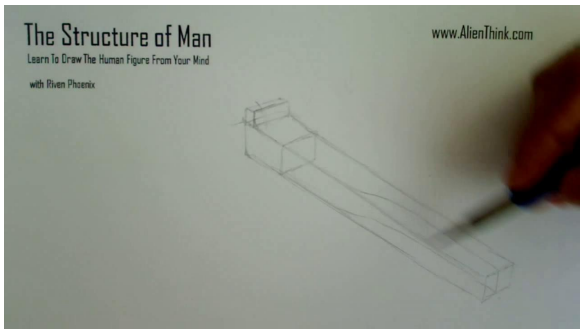
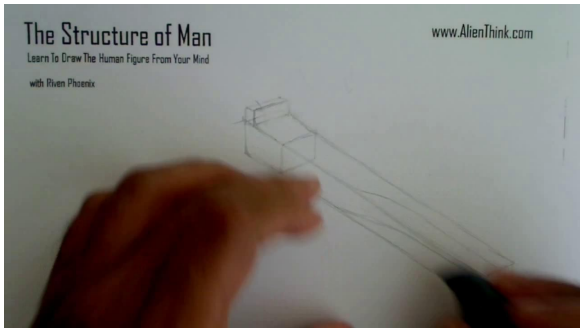
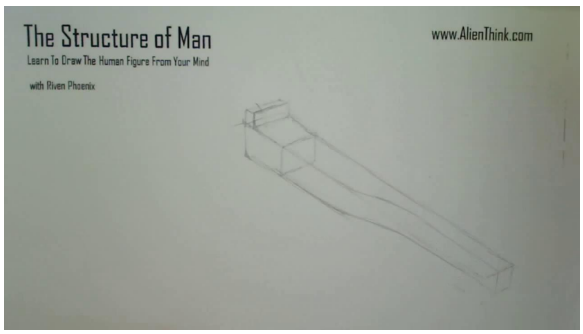
69		It's going to be just like this.
70		So here I'm going to erase this part here just to show you the characteristics of this
71		bone with the basic idea of it.
72		So just keep in mind that this is still flat.

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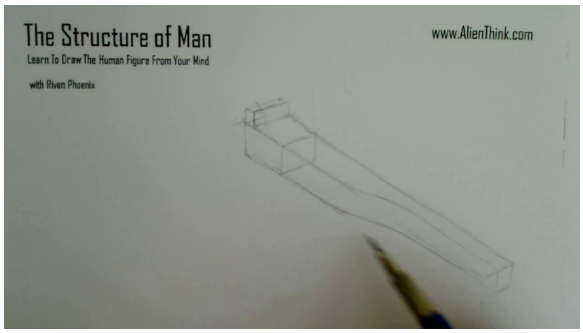
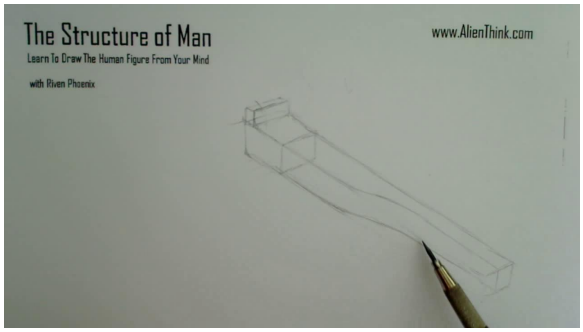
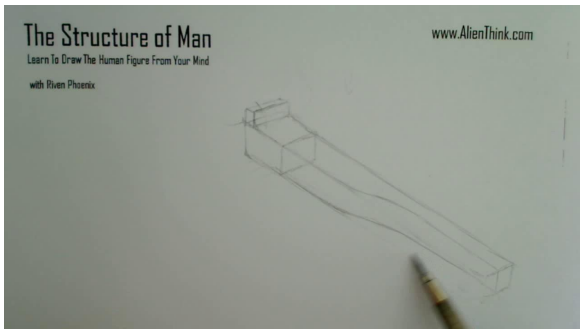
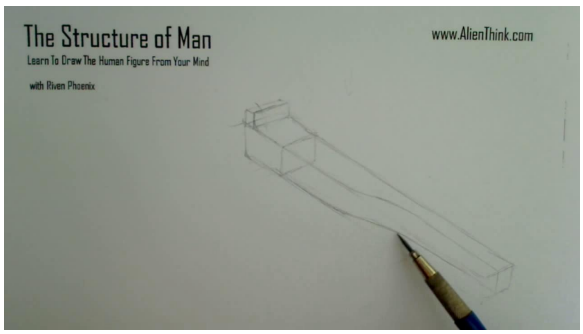
73		So if this was laying flat on the table, all of this here, there's not going to be any
74		kind of arc here.
75		It's all going to be flat on the table, right?
76		So if we do some kind of a texture here of our table cloth, it's going to be all flat

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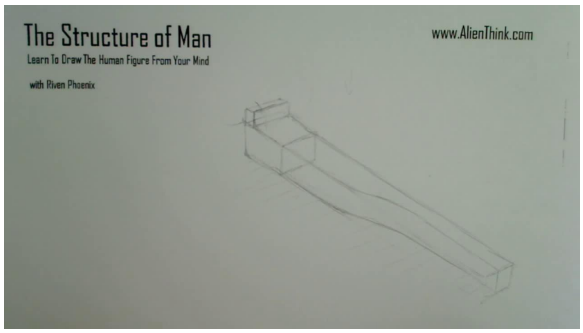
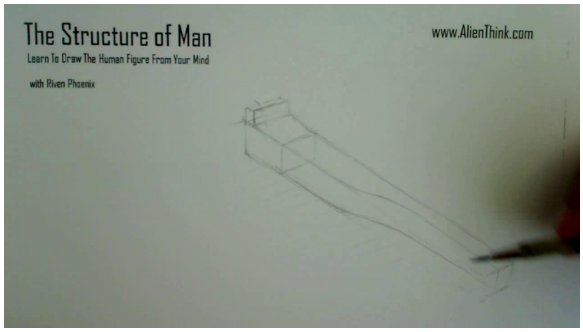
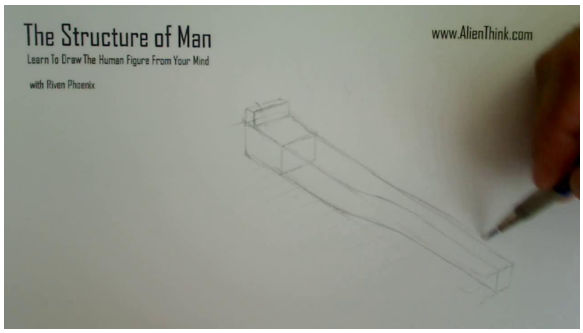
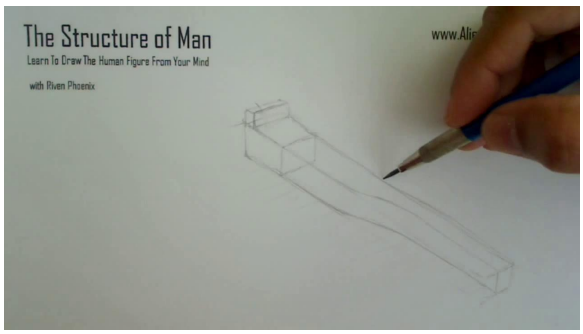
77		over here.
78		Okay, so once we have this, so we're also just going to add another piece of wood here
79		and just make it come out a little bit more.
80		So it's going to be like on this angle going in this way.

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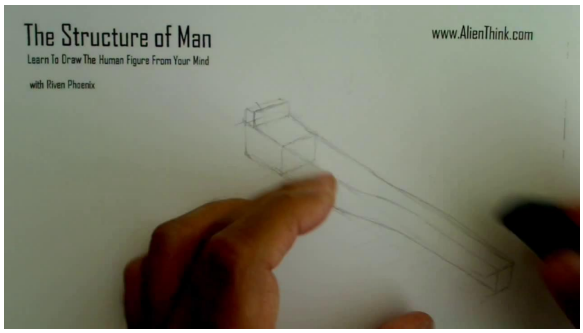
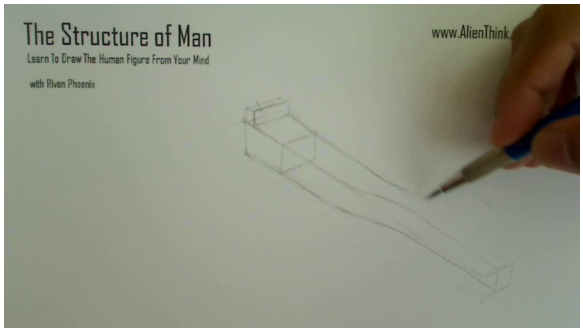
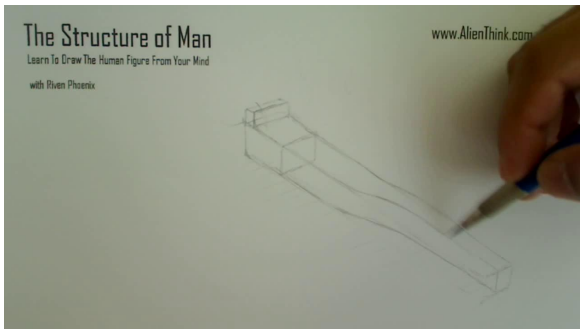
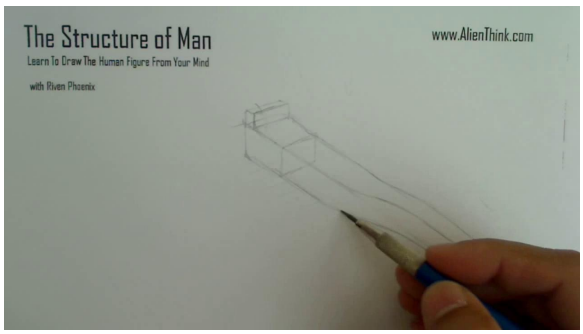
81		Okay, so here I'm just going to erase this stuff and make these ideas a little more cleaner,
82		right?
83		And then this here, I'm just going to do it like this, okay?
84		So basically this is the concept of the first bone, right?

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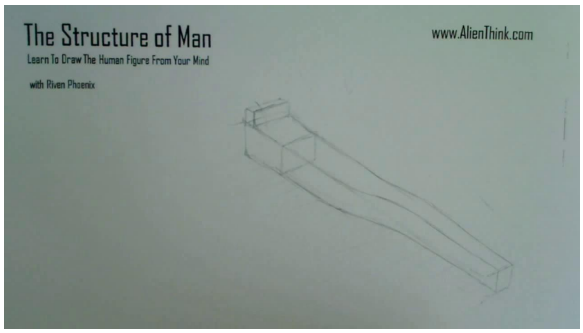
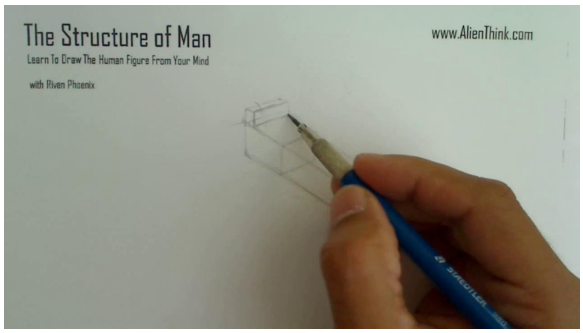
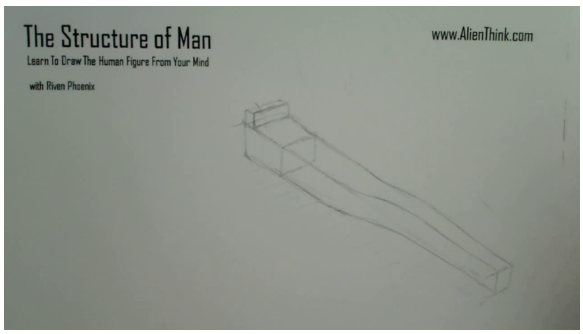
85		So this is the ulna.
86		Okay.
87		So the next bone we're going to now talk about is a very significant piece of bone.
88		And this bone plays a really important role in the construction of the arm which we're

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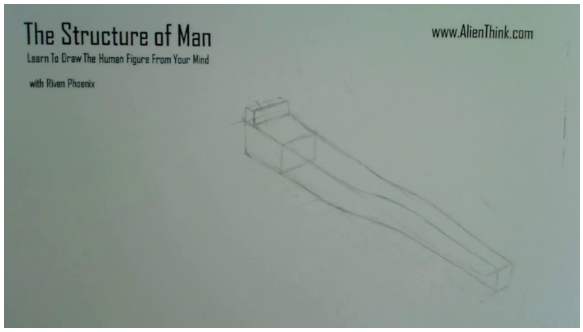
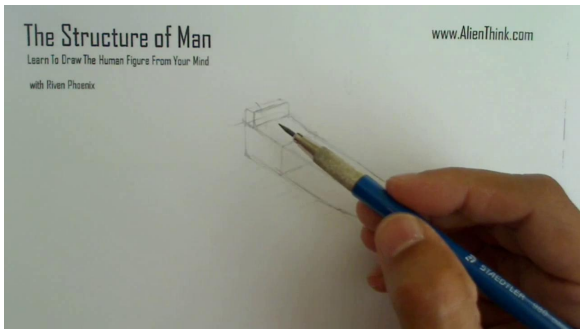
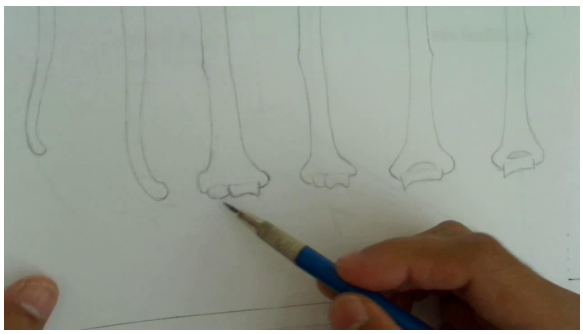
89		going to see in a little bit.
90		So this bone, see, this is where this was over here.
91		So if I go back to the paper that we were looking at, the radius, this is the new bone
92		that we're going to create, the radius is going to fit right over here, okay?

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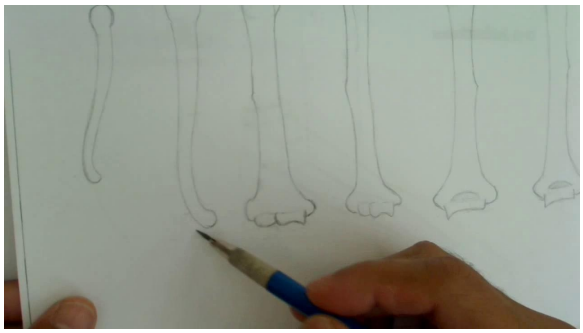
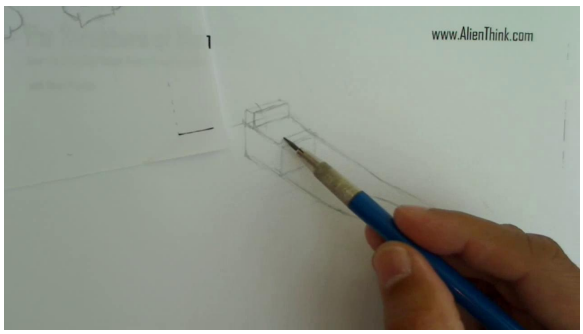
93		So here on the side, here on the side, the radius is going to be here, but that piece
94		of bone is going like this that we had just created, right?
95		So if it's kind of like this, right, it's going to have like a hook over here basically.
96		So here we're just going to add another design here, it's going to be like a hook, that

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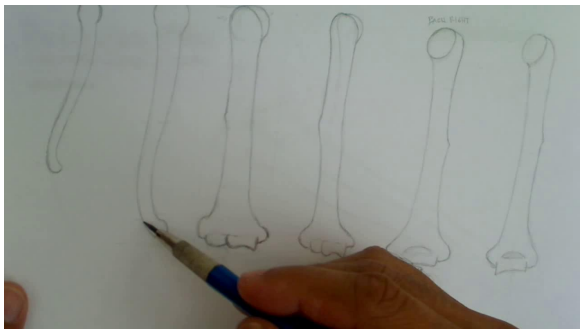
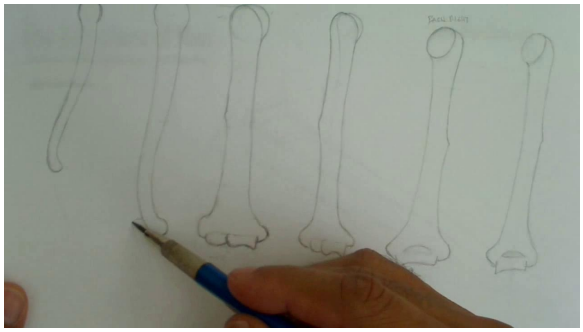
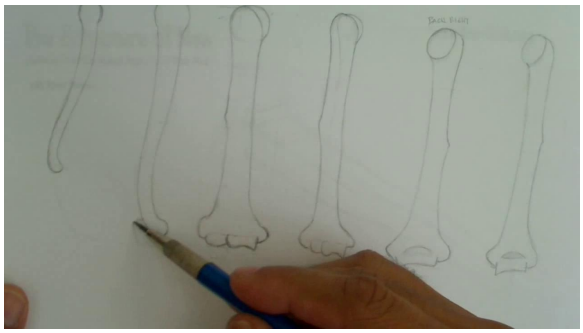
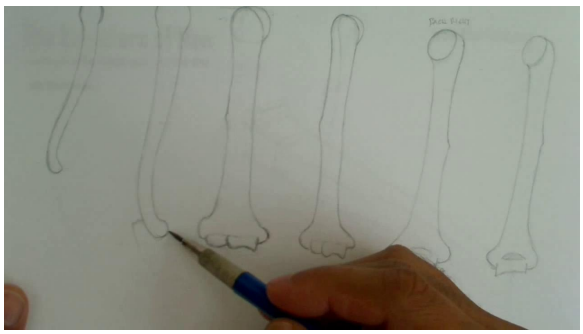
97		hook is really just going to be sitting like this over here like so.
98		And this is what's going to define your elbow, okay?
99		This is your elbow.
100		So the radius is going to be sitting here.

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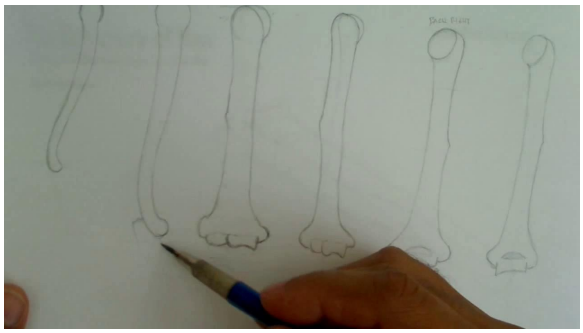
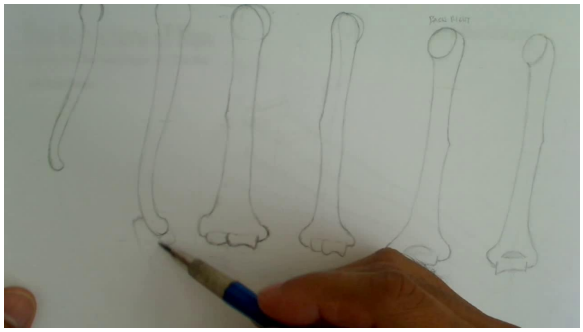
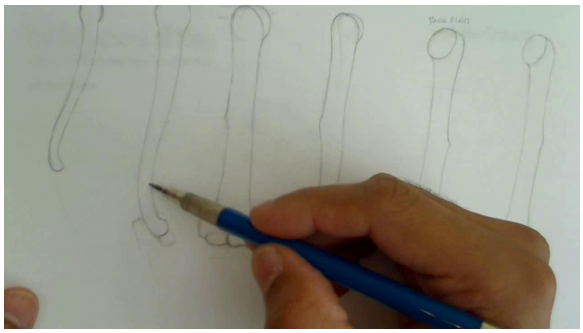
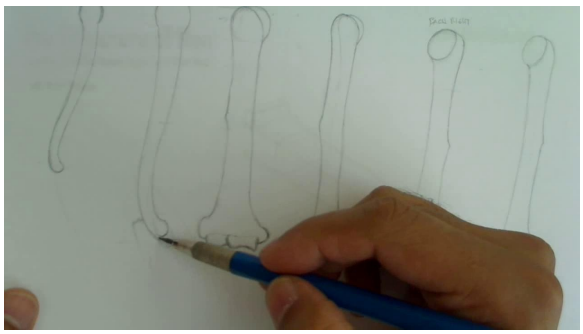
101		And this is an important concept to grasp as we'll see later on, is because this is
102		where you get that very small nut here in the forearm, right?
103		Your forearm muscles are going to be here like this over here, then you're going to get
104		that really, it's like a ditch in the arm, you're going to get your elbow over here,

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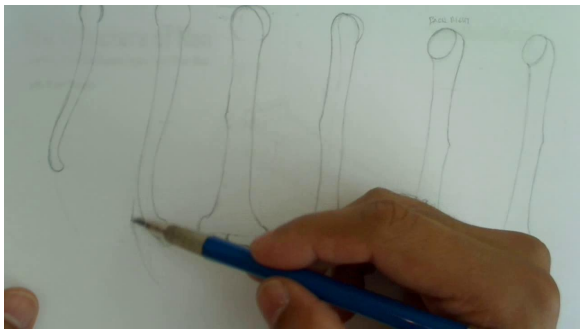
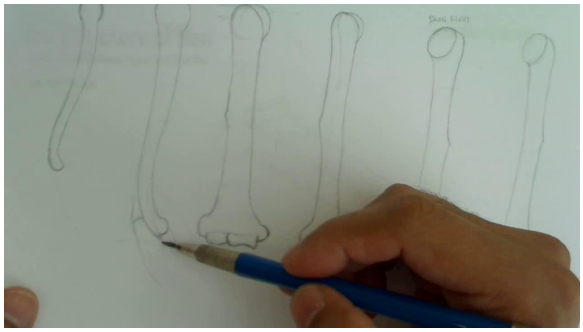
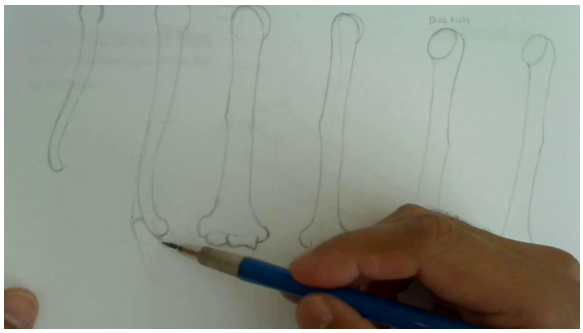
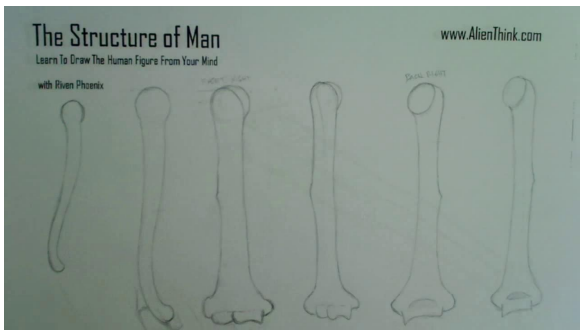
105		your triceps over here, right?
106		So there's like this ditch in the arm.
107		And this is something that you will notice yourself.
108		If you look at the bottom part of your elbow, and if you straighten it out, you'll see

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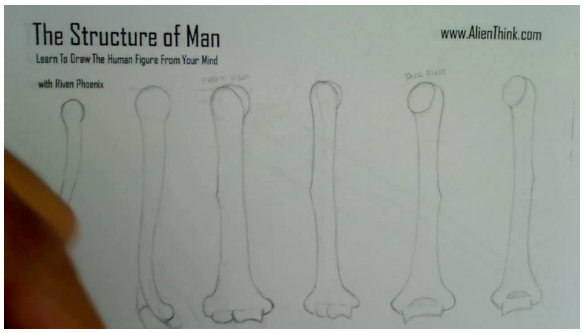
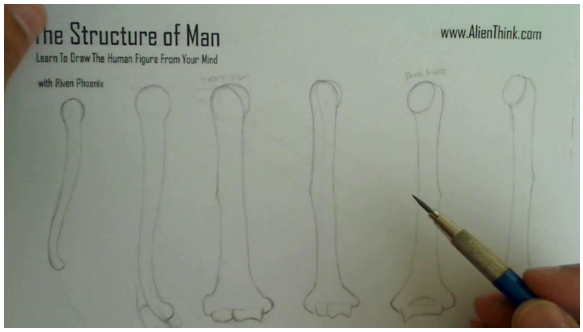
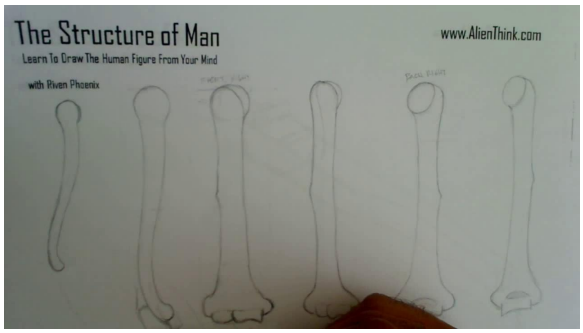
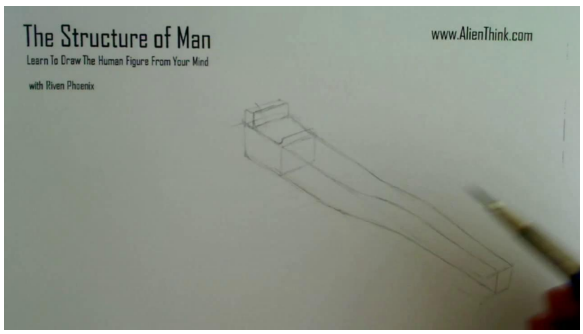
109		that there's a ditch inside the outer part of that side, and this is the ulna that causes
110		it, right?
111		And this is a significant area in figure drawing that appears on practically all figures.
112		Right?

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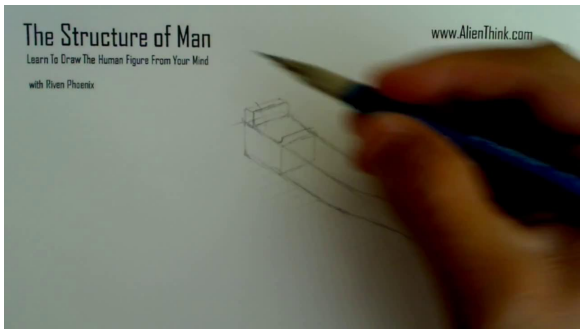
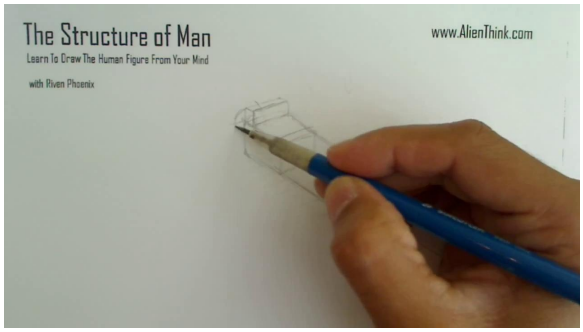
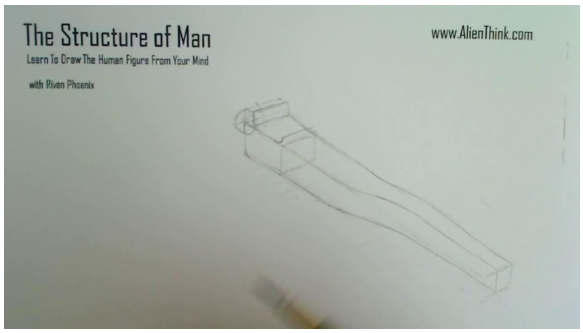
113		So what this means is that over here, the radius is basically just going to be this here
114		a cylindrical shape.
115		And then here I'm just going to clean up some of these ideas so you can start seeing this.
116		Okay, so this is going to be over here like this.

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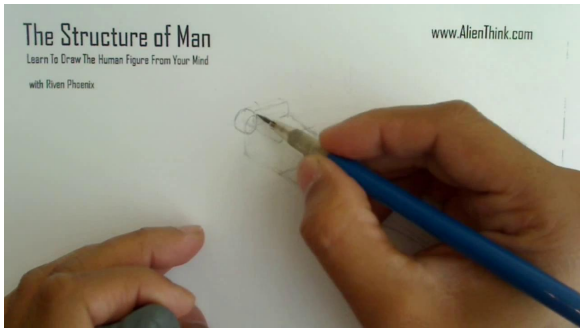
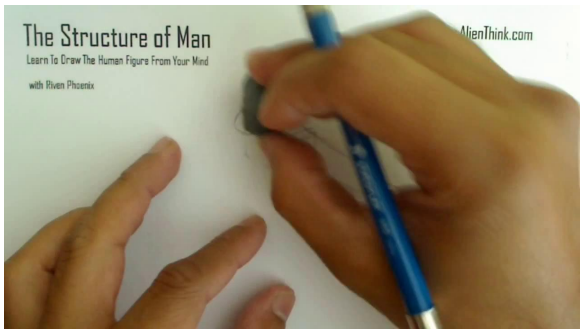
117		It's going to look where this is sitting.
118		It's on top, okay?
119		So since we know that the over here, see this part here, this whole part is going to be
120		taking up by the humorous bone, so we're going to now understand that, okay?

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121		If it sits over here, we're going to pull it down, and we're going to attach it right
122		over here, right?
123		So it's going to go up against the humorous bone, right?
124		So but notice that it's up here, right?

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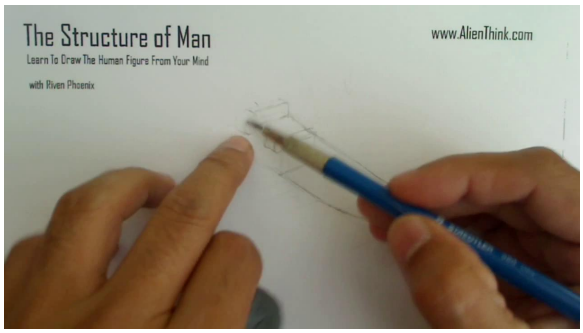
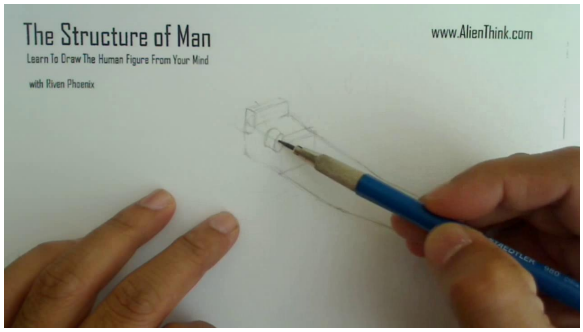
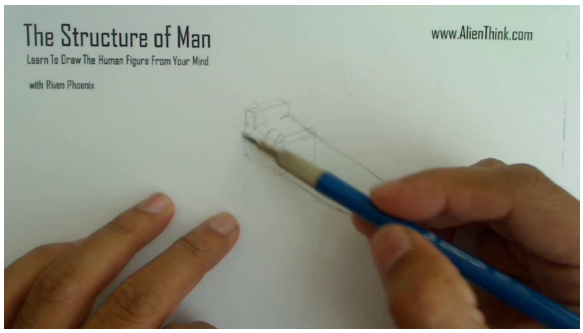
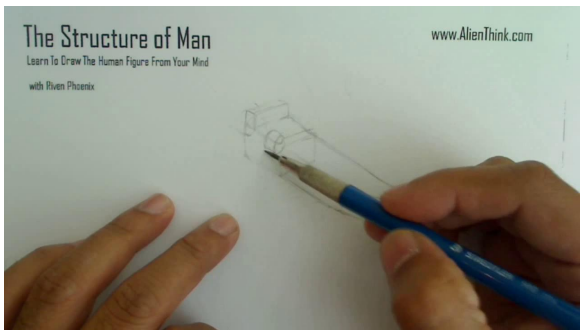
125		We put it up here first just to get the concept to understanding where this is, and we're
126		going to shift it over here, right?
127		So that piece of bone for the humorous will sit over here.
128		And this is the nudge that's going to be caused when the muscles go in your elbow.

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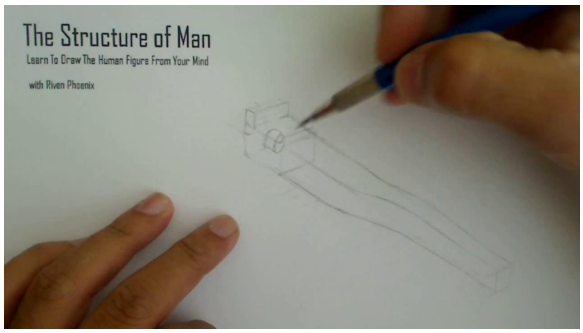
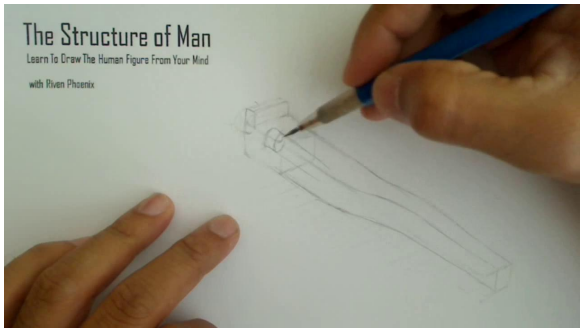
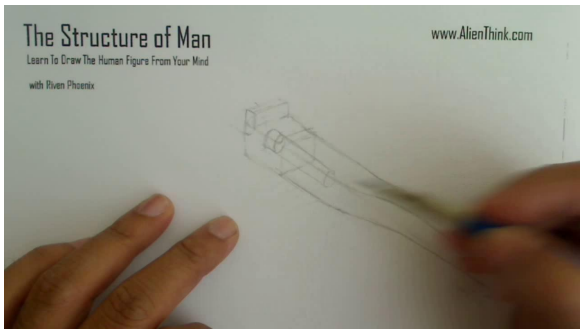
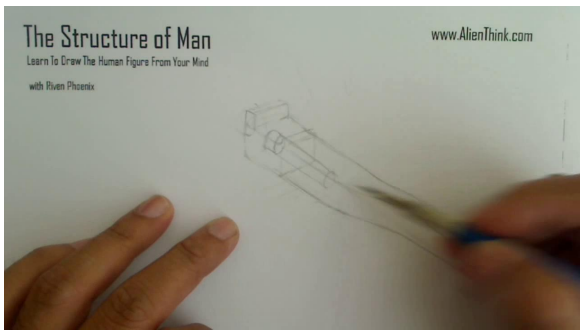
129		So what happens is basically this guy is just going to come up here like this, just imagine
130		this to be like a pipe that's just going like this, and we're going to basically come
131		over here.
132		So what happens is that this pipe also, when it goes over here, it's going to expand

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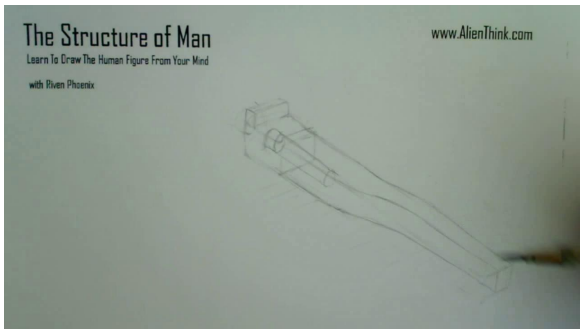
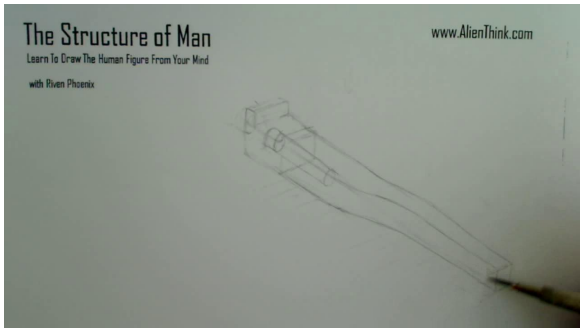
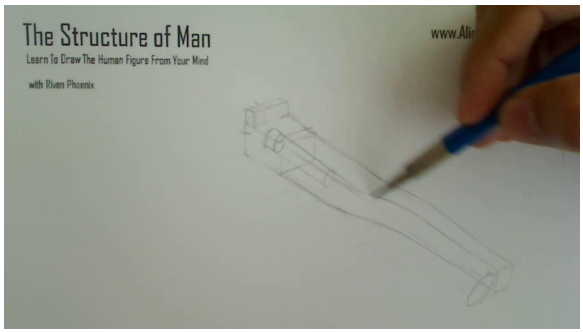
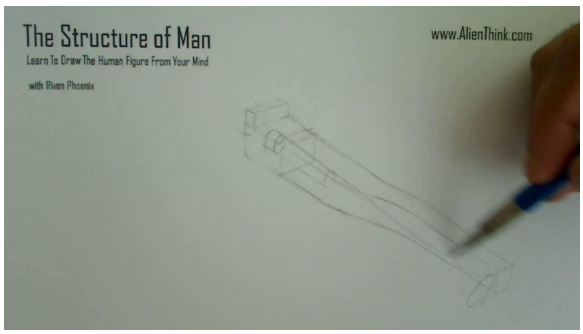
133		over here, right?
134		So just imagine this, that this is now this bit, but it's going to come on an angle.
135		So this is going straight, and this is going to go out a little bit, not that much, and
136		it's just going to come back in.

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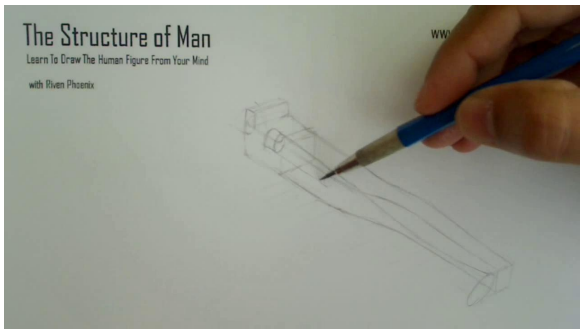
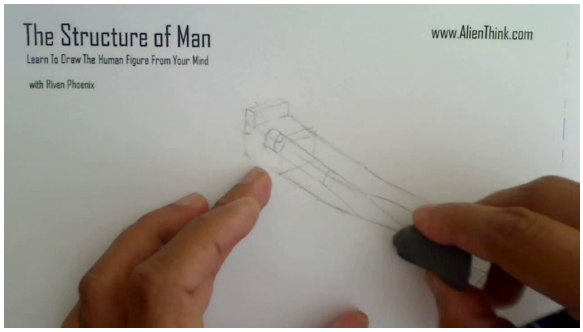
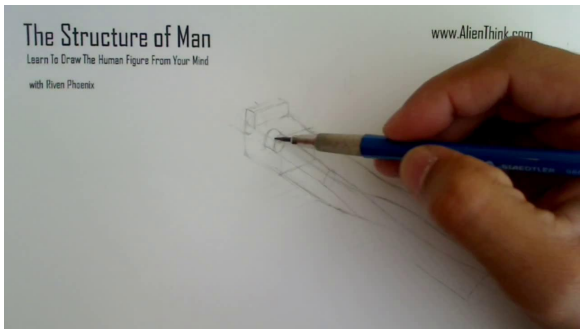
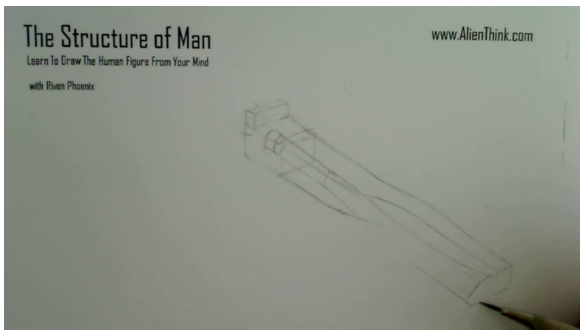
137		So basically it's just coming like this, and it's going to expand, okay?
138		But look what happens to it, that in the end, it ends up going downward.
139		So it was up and over here to down, right?
140		So just imagine this conceptually that this bone here is just going this way, right?

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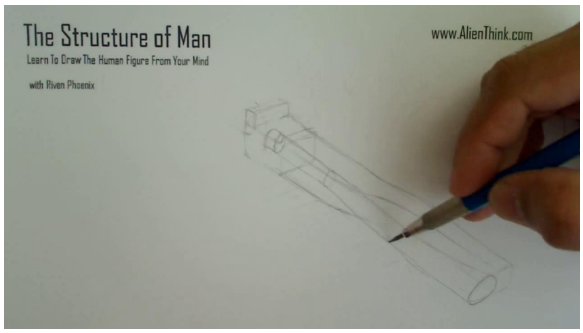
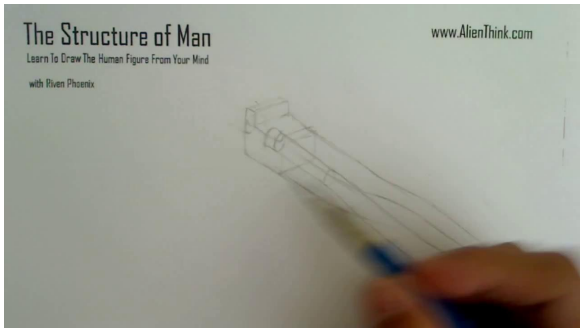
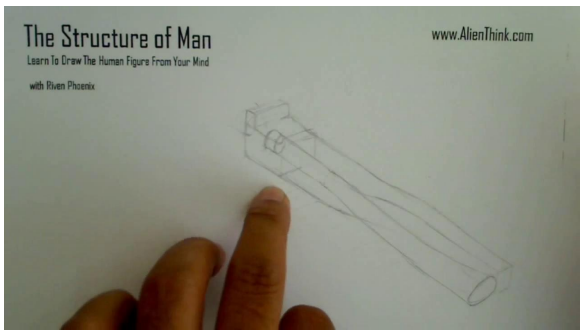
141		So this tells you quite a bit about what's going on with this part of the forearm, because
142		this is going to play a major role in figure drawing, right?
143		And understanding how the system works and how the muscles, this is part of the figure
144		that when we created, we'll see that when the muscles are wrapped, because the risk

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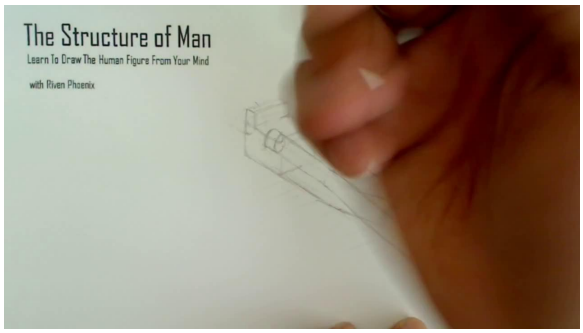
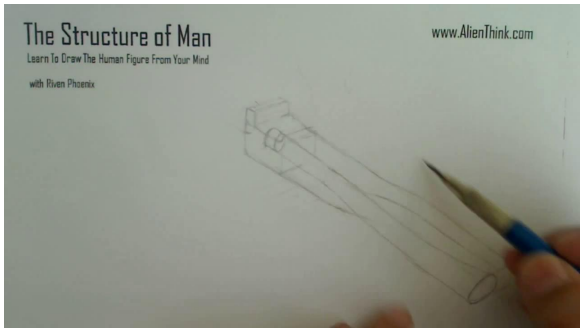
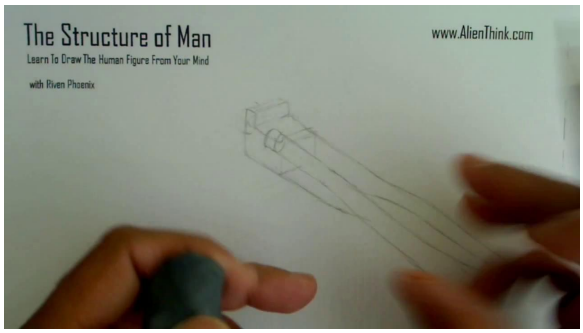
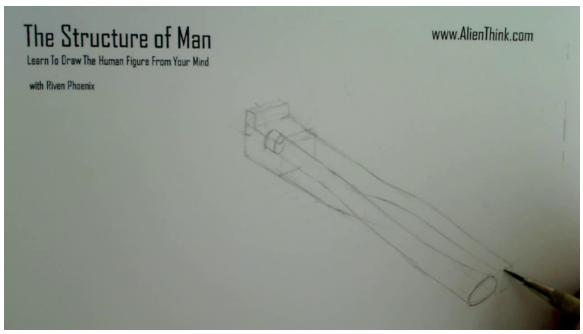
145		can turn up and down like this, what's going to happen is any muscle that's at that is
146		going to be able to cross over, right?
147		It can twist and conform, and this is a concept that we're looking at in detail.
148		Let's look at risk.

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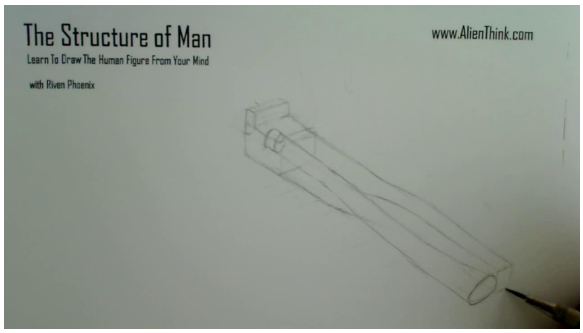
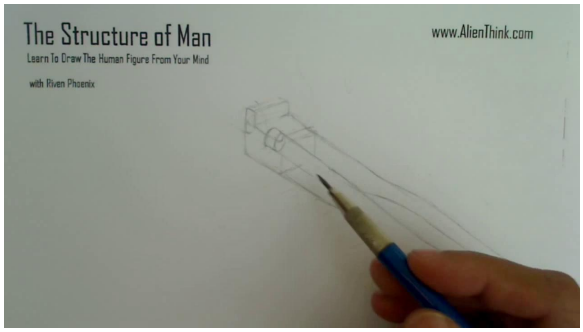
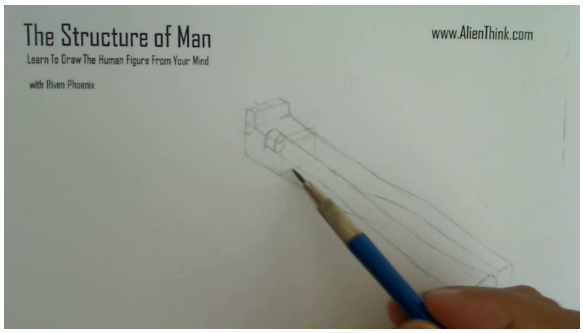
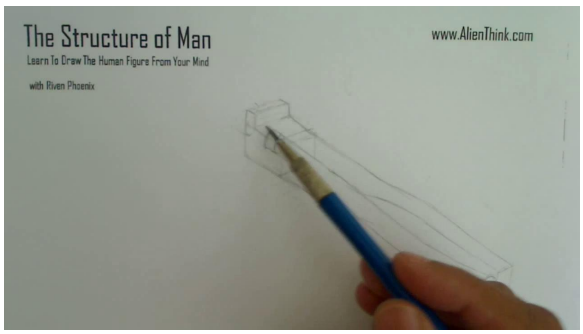
149		It's going to be here.
150		So what this tells you about the, the, the online radius is that where the elbow is,
151		this bone really doesn't move, right?
152		It's completely stuck on the, on the humorous bone over here, right?

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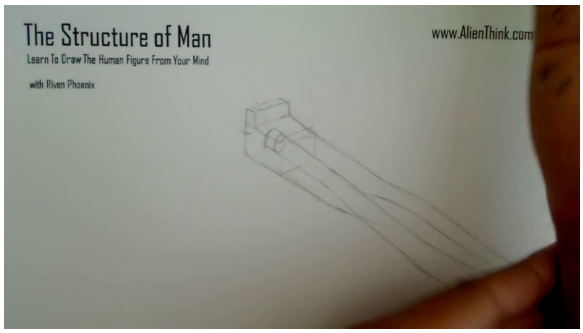
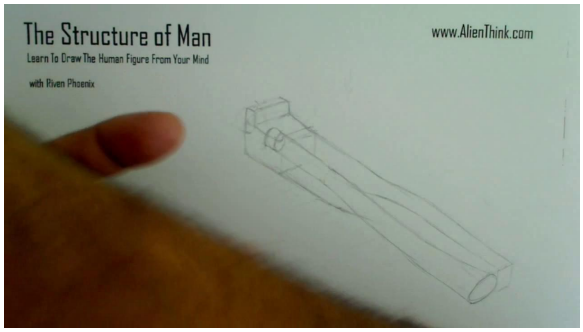
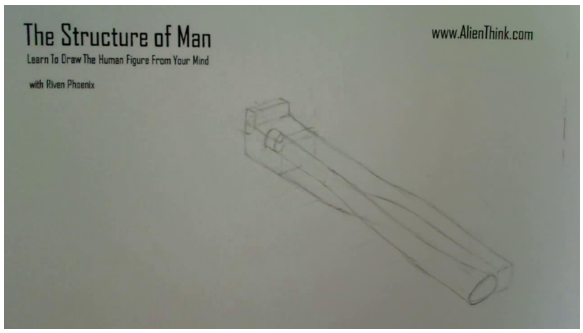
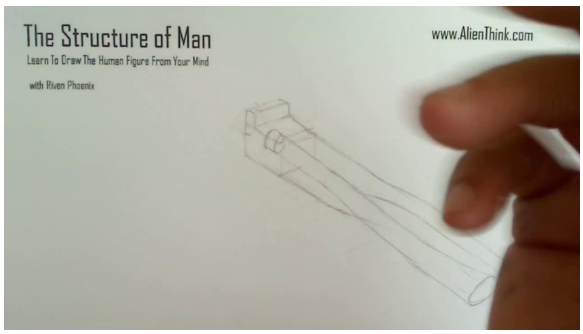
153		Regardless of the fact, so if you wanted to research this, you could put your hand over
154		here, find the ulna all the way in the back, right?
155		And then try to twist your wrist, you'll notice that it doesn't move, right?
156		It creates the illusion that it's moving is because we can move the, the arm this way

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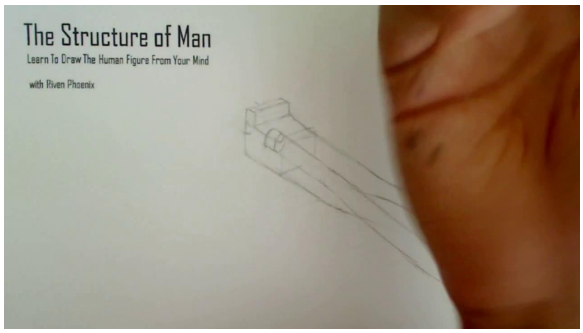
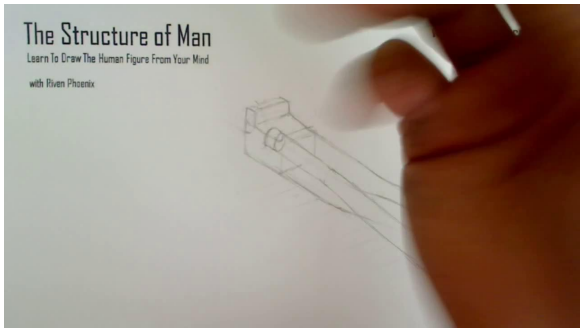
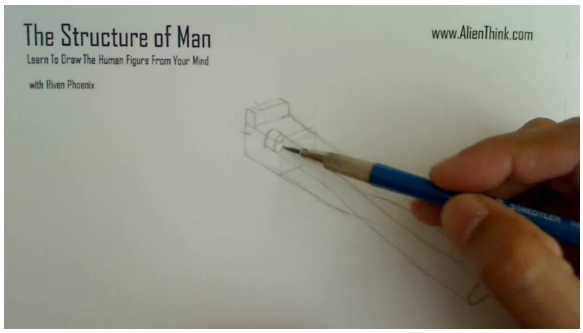
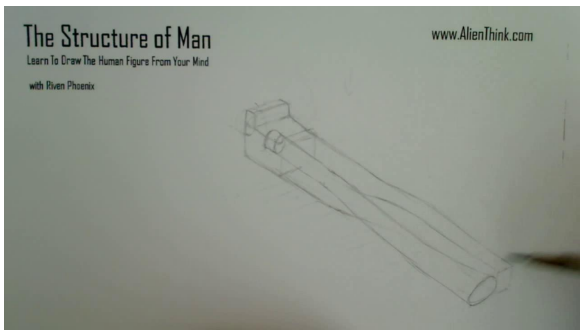
157		in it, it rotates.
158		So it creates the illusion that this is getting moved, but it doesn't, it's stuck.
159		It's only this bone that allows the wrist to move in that way, right?
160		So keep that in mind for, in, in the, in the future that this is a rule that we're coming

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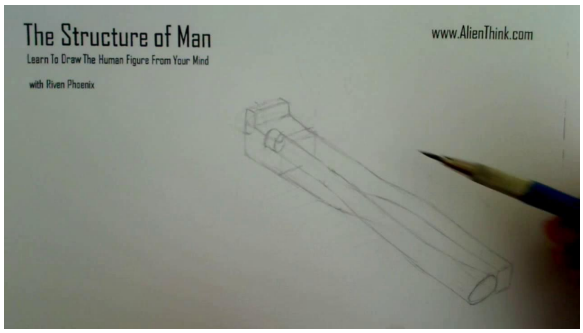
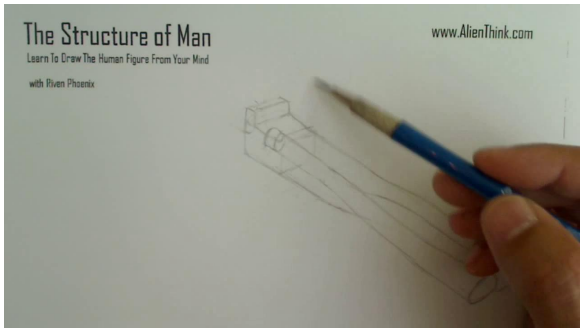
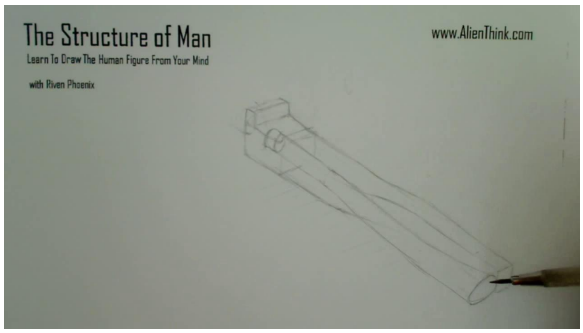
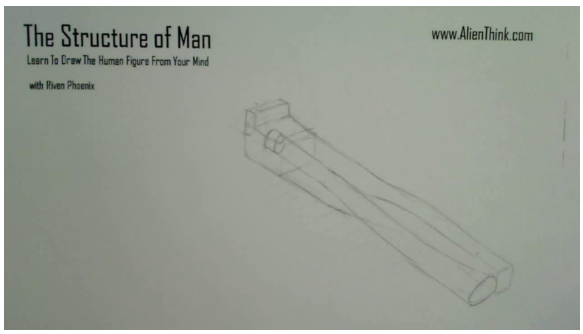
161		up with, that the, the ulna does not move, it's stuck on to this guy here, and it's the
162		way that the arm mechanism is going to be designed, it's really the radius that's going
163		to be moving, right?
164		So, you know, to understand this, what we need to know from this is that wherever the radius

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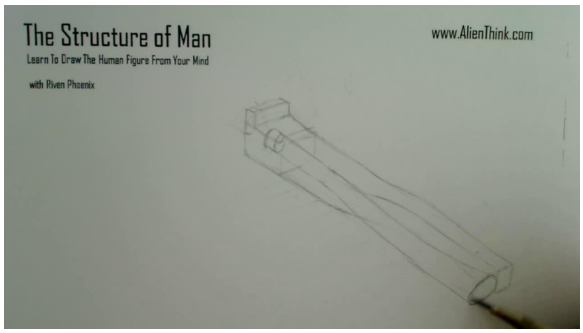
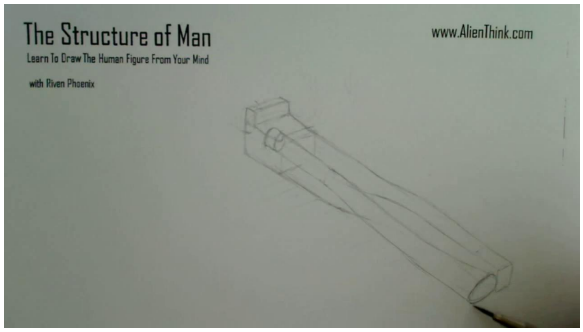
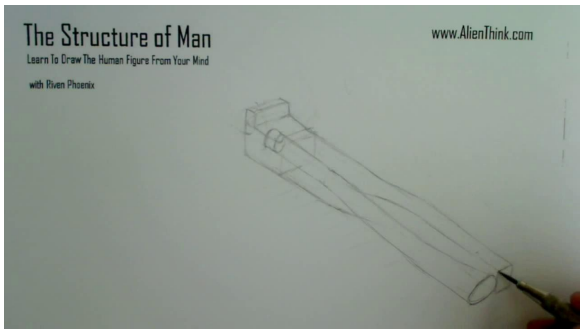
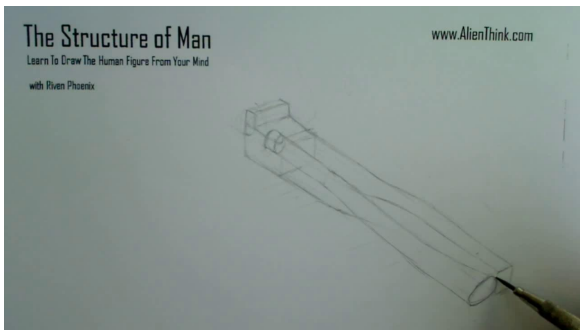
165		is, is where the thumb is going to be connected, right?
166		The thumb is on the side of the radius, and this part here of your hand is, is, is on
167		the part of the ulna, right?
168		So this will come in handy is because if you're twisting the arm left and right or whatever,

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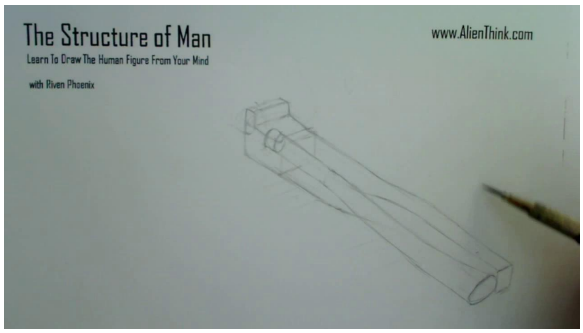
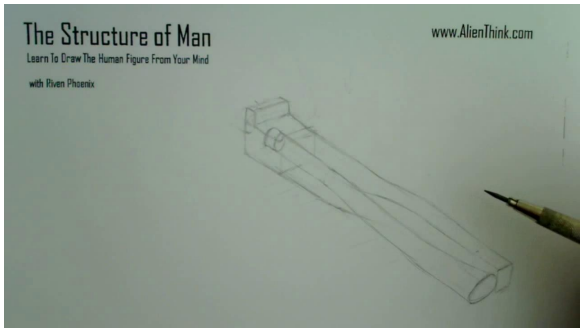
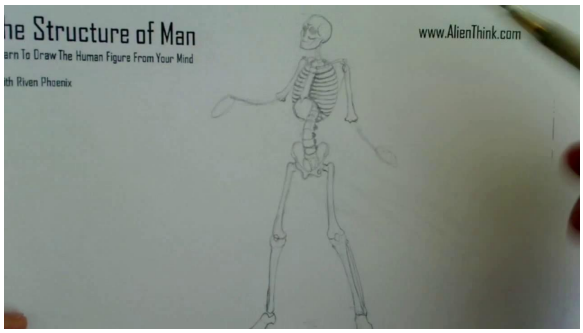
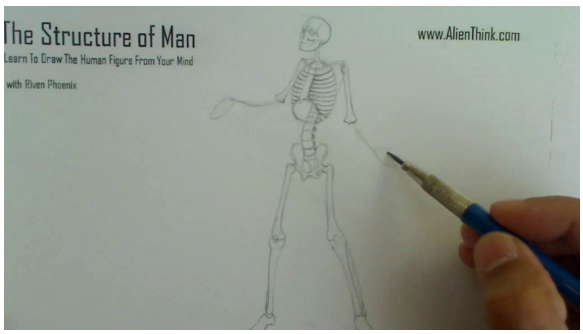
169		you, that's what we have to understand, right?
170		So if you go back, let's go back to the drawing that we did all over here.
171		So if you go back to this drawing here, knowing just this fact over here that this is where
172		the thumb is, you know that, okay, I understand that over here when we are drawing it, when

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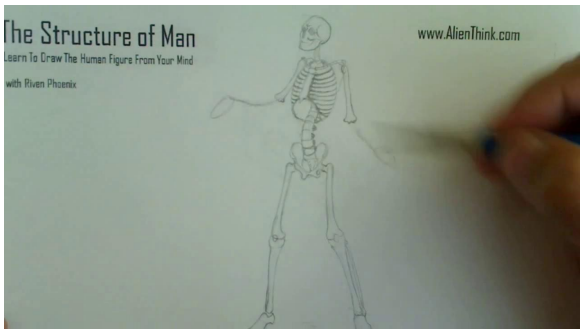
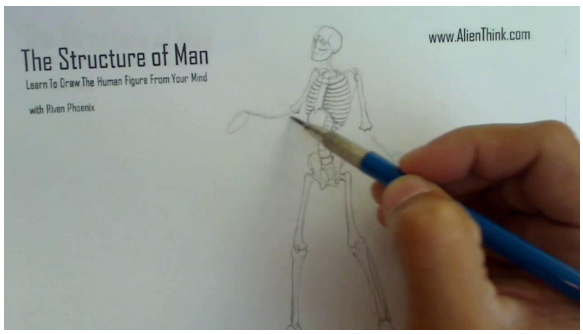
173		we finally understood how the ulna is working, the ulna is just going to be here on the
174		side of the palm, and it is the radius on this side that's going to be on the side of
175		the thumb, right?
176		Over here, it's going to be the same thing.

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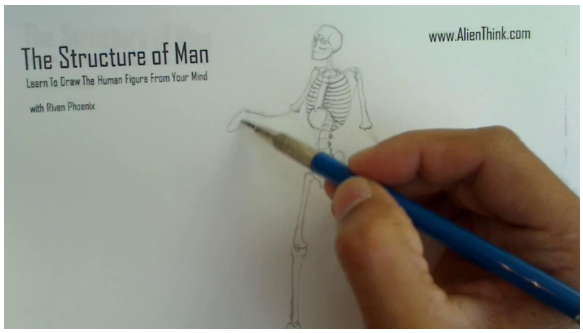
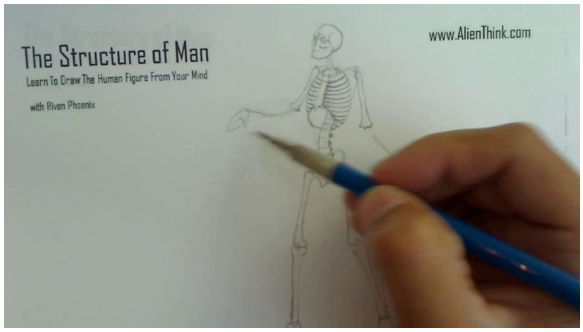
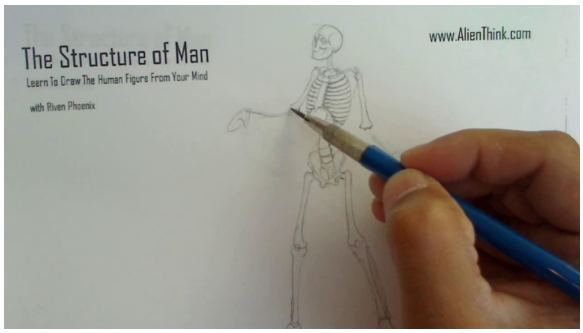
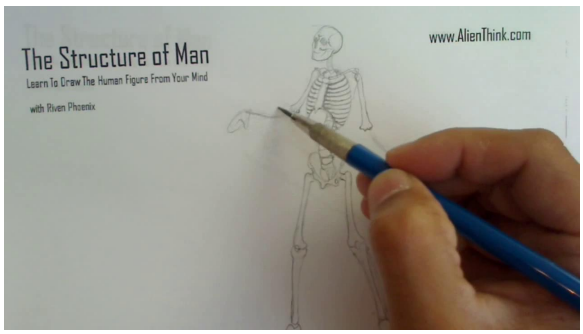
177		If the thumb is coming here, let's say if the arm, if the hand was twisted, if this
178		was the hand twisted, that means the radius is here, now it's going to twist back around
179		and it's going to attach here, right?
180		And this is what's going to cause all the muscles to move around.

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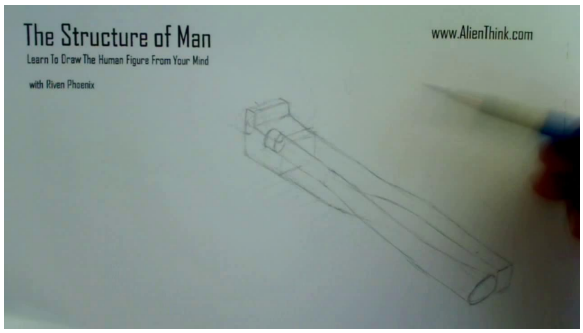
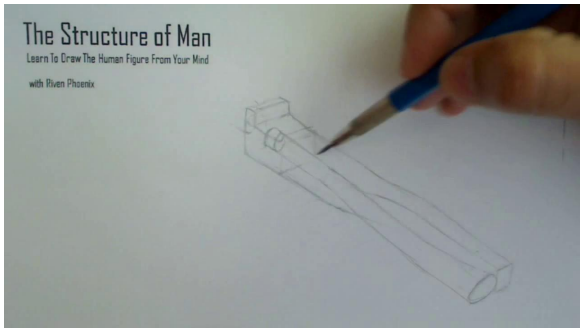
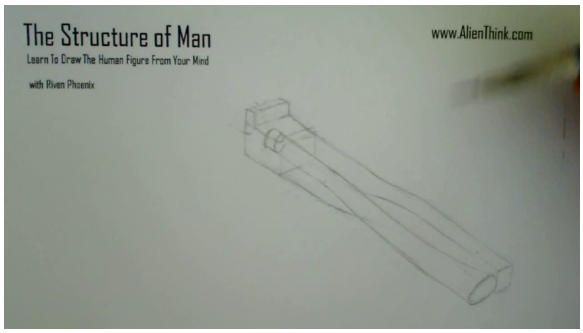
181		So this is a concept of looking in much more detail as we move through this, but this
182		should give the mind a good idea of our invention as to how we want this to work.
183		Okay, so I'll see you in the next lesson, thanks.

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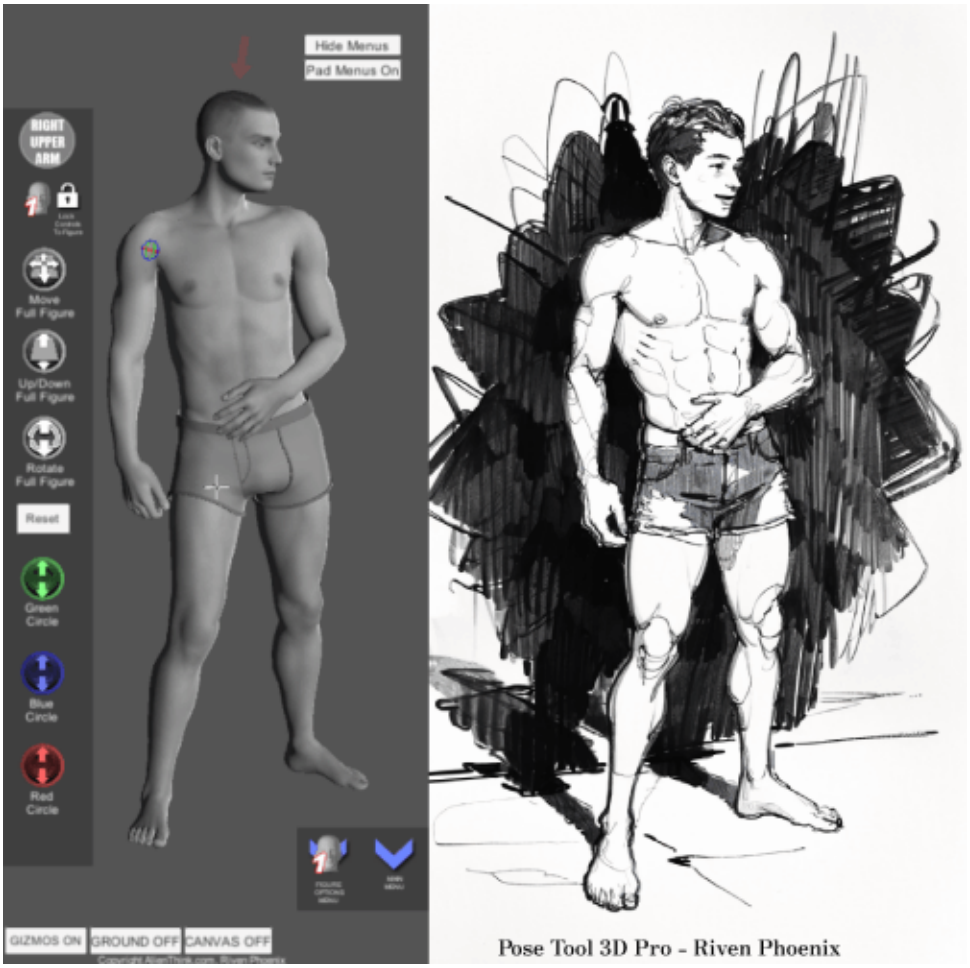

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